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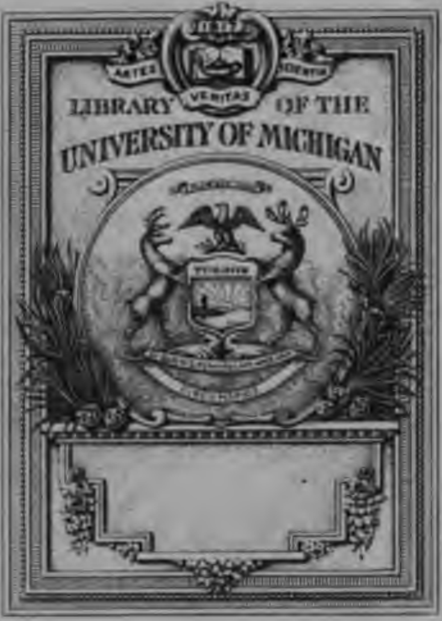

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ERRATA IN VOL. VI.

Page 2, line 4 from bottom, for *of* read *and*.
“ 3, “ 13 “ top, for *Cretacean* read *Cetacean*.
“ 33, “ 13 and 20 from bottom, for *Nipongue* read *Mpongue*.
“ 36, “ 26 from top, for *undeniable* read *undeniably*.
“ 40, “ 19 “ bottom, for *interstialis* read *interstitialis*.
“ 45, “ 5 “ top, for *thorace* read *thorax*.
“ 46, “ 18 “ bottom, for *simplicibus* read *fulcrantibus*.
“ 48, in division (*b*) of Eucnemis, for *serratæ* read *pectinatæ*.
“ 66, “ 10 from top, for *is* read *are*.
“ 114, “ 2 “ bottom, for *fulvis* read *fulvus*.
“ 141. “ 9 “ bottom, for *generus* read *genus*.
“ 149, in note (†) for *fr* read *für*.
“ 150. the three lines of the diagnosis of Cephennium corporosum have lost the initial letters: to the first add l, to the second *pl*, to the third *a*.
“ 171. line 2 from bottom, for *Africa* read *America*.
“ 174. “ 22 “ top, for *inferior* read *anterior*.
“ 180, for *Homolosaurus* read *Homalosaurus*.
“ 181, for *Pituophis* read *Pityophis*.
“ 229, line 21 from top, for *Anchytursus* read *Anchytarsus*.
“ “ “ 40 “ top, for *picea* read *brunneus*.
“ 231, after Tostegoptera, for *Edwards* read *Blanchard*.
“ 241, line 15 from top, for *Enbradys* read *Eubradys*.
“ 302, line 13 from top, for 1859 read 1849.
“ 327. “ 31 “ top, for *læniata* read *tæniata*.
“ 329, “ 22 “ top, for *parvus* read *parvulus*, vide p. 411.
“ “ “ 26 “ top, for *Fern* read *Kern*.
“ 337, “ 31 “ top, for *Fauna* read *Faunas*.
“ 365, “ 12 “ top, for *Traünfeld* read *Fraünfeld*.
“ “ “ 29 “ top, for *truncates* read *truncatus*.
“ 377, top line, for —— read *and*.
“ 376, line 17 from bottom, for *Prisidon* read *Prisodon*.
“ 403, “ 2 “ bottom, for *Lyceum* read *State Library*.
“ 419, “ 17 “ bottom, for *Agryppus* read *Agrypnus*.
“ 454, “ 9 “ bottom, for *Endomochydæ* read *Endomychidæ*.
“ lxviii, line 22 from bottom, add *Mr. T. A. Conrad*.
“ lxxiv, line 17 from top, for *Vorselemque* read *Vorlesungen*.

The following omissions of donations to the Library, August 10th, 1852, occurred at page xxxiii:

Description of a Skeleton of the Mastodon giganteus, of North America. By John C. Warren, M. D. 4to. From the Author.

Exploration and Survey of the Valley of the Great Salt Lake of Utah. By Howard Stansbury, Capt. U. S. Topograph. Eng. 8vo. and map. From Col. J. J. Abert.

Experimental Researches in Electricity, 29th series. By Michael Faraday, Esq. From the Author.

On the Physical Character of the Lines of Magnetic Force. By Michael Faraday, Esq. From the Author.

Zoology of the Great Salt Lake of Utah, (extracted from Capt. Stansbury's Report.) From Prof. S. F. Baird.

Geognostische Wanderungen im Gebiete der nordöstlichen Alpen. Von Carl Ehrlich. From the Author.

Ueber die nordöstlichen Alpen. Von Carl Ehrlich. From the Author.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

January 6th, 1852.

The President, Mr. George Ord, in the Chair.

Letters were read:

From Dr. Benjamin F. Shumard, dated Oregon City, Nov. 18th, 1851, giving a brief account of his geological observations in Oregon Territory.

From the Secretary of the American Philosophical Society, dated Philadelphia, Dec. 19th, 1851, acknowledging the receipt of various Nos. of Vols. 4 and 5 of the Proceedings, furnished by request to complete the series of the same in the Library of that Society.

From the Secretary of the Trustees of the New York State Library, dated Albany, Dec. 26th, 1851, acknowledging the receipt of late Nos. of the Proceedings, &c.

From T. R. Peale, Esq., dated Washington, D. C., Dec. 26th, 1851, suggesting the propriety of taking measures at this time to dispose of the collection of French Political Documents belonging to the Academy, to Congress.

From George Ord, Esq., dated Philadelphia, Jan. 1st, 1852, presenting his acknowledgments for his election as President of the Institution.

Dr. Leidy read a continuation of Mr. Dana's paper on the Crustacea of the late U. S. Exploring Expedition, which was on motion referred to the Committee on the former portions of the paper.

Dr. Leconte read a paper entitled "Notice of fossil Dicotyles from Missouri," and also a Notice of some fossil Pachyderms from Illinois; both of which being intended for publication in the Proceedings, were referred to Dr. Leidy, Dr. Carson and Mr. Moss.

Dr. Leidy read the following remarks by Dr. J. L. Burtt, U. S N., on the influence of Sulphuretted Hydrogen arising from the bottom of the Bay of Callao on the fishes in its waters:

"One occurrence always excited much interest, whenever there was an evolution of sulpho-hydric acid gas, (a frequent occurrence) from the bottom of the Bay of Callao. The first premonition of what was to produce a remarkable destruction among fish, was the discoloration of the water of the bay, from a marine green to a dirty milk-white hue, followed by a decided odor of the gas; so much of it being present on many occasions as directly to blacken a clean piece of silver, and to blacken paint work in a few hours.

The fish, during this evolution, rose in vast numbers from the bottom; and after struggling for some time in convulsions upon the surface, died.

I was particularly struck by this fact, that all of them during the time that they were under its influence, acted in precisely the same manner. The first thing noticeable with regard to its effect upon them, was that on coming near the surface, they seemed to have much difficulty in remaining below it at all. They then rose completely to the surface, struggling vainly to dive beneath. This was followed by violent springing and darting in various directions—evidently without control of direction—for they moved sideways, or upon the back, and sometimes tail first, with great velocity. After a little time their motion became circular, and upon the back, the circle of gyration constantly diminishing, and the rapidity of the motion as constantly increasing, until there was a sudden cessation of all motion. The head then floated about the surface; the body being in a perpendicular position. A few convulsive movements shortly followed, and they were dead.

I have watched thousands of them so dying; and in every instance such was the mode of death. Having taken them at the moment of death and immediately after, a rude examination showed in all the same appearances. The intestines and brain were gorged with blood, much darker than natural. The gills were almost black and the air-bladder ruptured. A premonitory symptom that such destruction was about to occur, was the previous appearance of unaccountable numbers of fishing-birds, especially of the Pelicans. On one occasion, taking the known size of the Island of San Lorenzo as a guide for measurement, we concluded that there was a body of Pelicans five miles long, one mile wide, and 300 feet thick, filling the water and air as closely as possibly they could do. How many were there? Can we wonder at the size of guano deposits?"

Dr. Leidy called the attention of the members to a fossil tooth and a fragment of a second, from the collection made by Mr. Culbertson in Nebraska Territory, which, he observed, belonged to a new species of Rhinoceros, or probably Acerotherium The former specimen is probably a third premolar, the latter a portion of the fourth. A great peculiarity in the teeth is the confluence of the inner lobes with each other, and their separation to the base from the outer lobes. They possess a remarkably strong basal ridge, and indicate an animal larger than any species of existing Rhinoceros: the greatest transverse diameter of the third premolar being 2½ inches; its antero-posterior diameter 1¾ inches. For the species the name *Rhinoceros Americanus* is proposed.

Dr. Leidy also called the attention of the members to the fine mounted specimen of Polar Bear now in the Hall, the skin of which had been lately presented by Dr. E. K. Kane, U. S. N.

On motion of Dr. Fisher, the letter of Mr. Peale, read this evening, was referred to the Library Committee, with power to act.

Dr. Fisher announced that the collection of fossil foot-prints and fishes, belonging to Mr. Dexter Marsh, of Greenfield, Mass., was for sale.

On motion of Mr. Moss, the suggestions contained in the Report of the Librarian for 1851, were referred to the Library Committee.

January 13th.

Vice-President WETHERILL in the Chair.

Dr. Leidy presented an additional portion of Dr. Dana's communication on the Crustacea of the late American Exploring Expedition; which was referred as before to the original Committee.

Mr. Wetherill stated that the Phosphate of Lime, a specimen of which he presented this evening, was being much used for agricultural purposes, after being decomposed by the action of sulphuric acid.

Mr. Wetherill also stated that the Adipocire, also presented this evening, was the result of decomposition of the bodies of a number of sheep, which had been buried fifteen years since in a wet soil, on a farm in an adjoining county.

Dr. Leidy, referring to the Cetacean remains characterized by him at the meeting of December 9th, remarked that they were the first relics of Mammals that have been found in the Cretaceous Group.

On leave granted, the Committee to which was referred Dr. D. D. Owen's paper describing a new Mineral and a new Earth, presented a report, recommending the same for publication in the forthcoming No. of the Journal, which was adopted.

January 27th.

Mr. ORD, President, in the Chair.

The Committee, to which was referred the following papers of Dr. Le Conte, reported in favor of publication in the Proceedings.

Notes on some Fossil Suiline Pachyderms from Illinois.

BY JOHN L. LE CONTE, M. D.

DICOTYLES DEPRESSIFRONS.

Hyops depressifrons Lec. Am. Journ. Sc. 2d series, Vol. 5, 103 (1848.)

After a careful comparison of the fragments of this animal with Dicotyles torquatus. I have come to the conclusion that the differences are by no means of such a nature as to admit of the formation of a peculiar genus.

The differences in the cranium which distinguish this animal from D. torquatus are: 1st, the greater depression of the front; 2d, the greater expansion and less sudden declivity of the malar plates; 3d, the less convex nasal bones. In consequence of this last character, the groove running forward from the frontal foramen is more or less superior in its whole extent, and never lateral, as in the anterior part of the head of D. torquatus.

The lower part of the skull and the anterior part of the nose are broken away, so that no teeth remain in the fragment.

Accompanying this fragment are four teeth from the upper jaw, which differ from the corresponding teeth of Platygonus compressus *Lec.*, from the same locality, by having the transverse ridges more distinctly connected with the basal margin; this is especially the case at the posterior margin; the ridges also show a tendency to unite together, and thus the transverse valley is rendered a little narrower than in Platygonus. In all these points the teeth agree exactly with Dicotyles torquatus, and on a careful comparison nothing worthy of notice, even as a specific difference, could be detected. A part of the socket of the left superior canine, with the adjoining portion of the palatal plate, shows no difference on comparison with D. torquatus.

The base of the inferior left canine was found in its socket; the remainder was found broken; the fragments were put together so as to make almost a complete tooth which presents no specific characters of any importance; the anterior margin is more rounded than in D. torquatus, and the groves on the posterior external, and internal faces of the fang are deeper; the young of D. torquatus in the depth of the grooves agrees perfectly with our fossil, which, however, from the wearing of the tooth must have been an adult.

The condyloid process of the right lower jaw was found broken off just below the neck; in comparison with D. torquatus, it is less concave in its external outline, and there is a slight depression externally just below the end of the articular surface; the posterior face a little below the articular part is more compressed and less flattened than in D. torquatus.

The inferior extremity of the humerus is perforated; the articular faces are in no respect different from those of D. torquatus.

The same is the case with the innominatum and the femur.

Of the left posterior foot is preserved the calcaneum, the outer metatarsal, the first and second phalanges of the outer toe and the first phalanx of the inner toe; all these bones completely resemble the corresponding parts of D. torquatus.

As compared with Platygonus compressus, the calcaneum shows important characters, which may be used in separating the bones of these animals, if they should again be found mixed together.

In Platygonus the astragalian face is not distinctly defined at its supero-external part, but is confluent with the depression existing in that part of the bone behind the fibular process.

In Sus and Dicotyles this face is distinctly separated from the valley between the two processes, and the inferior part of the astralagian process is much less thickened than in Platygonus; the whole bone is more slender and less flattened than in Platygonus.

My reasons for considering the cuboides figured by me* as belonging to Platygonus, are as follows:

From teeth there was evidence of two specimens of Platygonus of different ages; portions of three calcaneal bones of the left side were found, two of which were precisely similar; the third is the one here mentioned as belonging to Dicotyles. The larger of the two similar bones fitted perfectly with the extremity of a tibia, an astralagus and a cuboides forming a considerable portion of the tarsus; to this cuboides, however, the metatarsal bone above described cannot be adapted.

This will be the proper place for correcting an important error in the memoir on Platygonus already quoted: on page 270, pl. 4, figs. 23 and 25, is represented what was considered the *inner metatarsal*. On comparison this bone is found to correspond accurately with the inner right metacarpal of Dicotyles; there are two specimens of this bone, differing slightly in size, and the smaller one of which has lost its lower extremity, and evidently belonged to a young animal. We have therefore the same reason to refer this to Platygonus as the tarsal bones above mentioned.

I should also notice here, that the superior canines of very young Dicotyles resemble very closely those of Platygonus but are not so much compressed, and have only a single angulated line at the anterior part of the base of the tooth.

On account of the very strong resemblance between the dentition of Platygonus and Dicotyles, I am inclined to consider the former as rather Suiline than Tapiroid in its affinities; the undulated outline of the lower jaw in the Dicotyles group, reaches its maximum in the great dilatation of the angle of the jaw in Platygonus; the compression of the canines is carried to a greater degree than in any other genus, and the molar structure is reduced to the simplest Pachydermal form by the absence of all accessary tubercles.

The dimensions of the fragments of Dicotyles depressifrons indicate an animal a little larger than the adult D. torquatus; the only measurements that can be given are the following, in English inches:

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* Memoirs Am. Acad. of Science and Arts, New Series, Vol. 3, pl. 4, figs. 25, 26.

Distance between the frontal foramina 1·2.

Third premolar: lateral diameter ·45: antero-posterior diameter ·4.

Fourth premolar: lateral diameter ·46: anterio-posterior diameter ·5.

First molar: lateral diameter ·55; antero-posterior diameter ·63.

Inferior canine: length 3.75; posterior breadth ·48; radius of curvature 2.75.

Humerus: diameter of inferior extremity 1.52; breadth of larger articular groove, .75; smaller groove ·4; least distance from lower margin of larger groove to foramen ·67.

Innominatum: diameter of acetabulum 1·2; least breadth of ilium 1·0.

Femur; length 6·85; from fovea on head, to extremity of trochanter major 1·72; breadth of tibial articular grove anteriorly .8; transverse diameter of condyles posteriorly 1·55.

Metatarsal: length 2·87; of inferior articular surfaces, lateral diameter ·46; antero-posterior diameter ·57; length of first phalanx 1·25; second phalanx ·95.

Calcaneum: length 2·45: greatest breadth 1·12; from fibular to apical process ·91.

Condyle of lower jaw; breadth 1·2: antero-posterior diameter of articular surface ·6.

PROTOCHŒRUS PRISMATICUS Lec. Am. Journ. Sc. 2nd series 5, 105.

To the description of the teeth of this animal, I have only to add that the fang of the canine is very similar to that of Sus babiroussa; the posterior molar bears considerable resemblance to that of Sus babiroussa, as represented by Blainville, (plate VIII.) although the student will fail to find the resemblance in nature. The Anthracotherium tooth figured in Owen's Odontography, with which I formerly compared this tooth, differs in having the lobes connected by an elevated ridge.

The dimensions of the teeth are as follows, and indicate an animal smaller than a Peccary.

Inferior canine: length of worn surface 1.35; breadth ·3; radius of curvature of posterior face and margin 2.46.

First inferior molar: lateral diameter ·39; antero-posterior diameter ·52.

Last inferior molar: breadth ·5; from posterior lobe to middle lobe ·26; to summit of anterior lobe ·58.

Notice of a fossil Dicotyles from Missouri.

By John L. Le Conte, M. D.

The Tooth which forms the subject of this communication, was found with some mastodon bones in Benton County, Missouri, and was presented to me by Dr. R. W. Gibbes.

It is a right lower canine, wanting the fang, and attached to a small piece of jaw, containing alveoli of three incisors.

The tooth has precisely the same direction as in D. torquatus, but is somewhat less compressed; the anterior edge is very acute; on the part of the fang which remains, no vestige of external and internal grooves exists; the posterior groove is well marked as in D. torquatus; on the outer surface of the tooth, nearer the posterior than the anterior margin, is an elevated ridge, acute at summit, which extends along the whole of the enamelled part of the tooth. This character is not to be found in D. torquatus; the very obsolete elevation which exists there being a consequence of the continuation of the grooves impressed on the internal face of the fang; I have also failed to discover a similar elevated line on the canine of any species of the Sus that has come under my observation.

As this seems to be a character of sufficient importance to separate the species co-existent with the Mastodon, from any now living, I would give it the name of Dicotyles costatus.

Although there is no character in this canine to make a reference to Dicotyles more certain than to Sus, yet as the latter genus has not been distinctly proved to have existed in this continent, and as in the existing creation Dicotyle is the true equivalent of Sus in America, the probability of our very distinct fossil species belonging to Dicotyles is much increased; this probability is rendered almost certain, when we consider that remains of true Dicotyles have been found in Illinois in company with other singular forms, (Platygonus and Anomodon) which by their great peculiarities would seem to indicate a period anterior to that of the Mastodon.

The measurements of the canine are: length of enamelled surface along anterior curvature 2·2; breadth of posterior surface ·37; radius of curvature of posterior edge 2·0; of anterior edge 2·1.

The Committee to which was referred Mr. Dana's papers on the Crustacea of the Exploring Expedition, reported in favor of publication in the Proceedings.

Conspectus Crustaceorum, &c. Conspectus of the Crustacea of the Exploring Expedition under Capt. Wilkes, U. S. N. By JAMES D. DANA.

PAGURIDEA, continued, and Subtribe MEGALOPIDEA.

I. PAGURIDEA, continued.

Among the species of the genus Pagurus, as restricted in my former paper on the Paguridea, there are still three groups of distinct character; one, having no trace of a beak, the front being truncate, and also having the fingers opening in a vertical plane, the hands being usually compressed, with commonly the left the larger; a second, having a short beak or triangular point in front, and the fingers opening like the preceding, with the hands subequal; a third, having a beak like the last, but the fingers opening in a *horizontal* plane, the hands being subequal and more or less depressed, and never compressed. The first group has *Pagurus punctulatus* for its type; the second, *P. aniculus;* the third, *P. clibanarius.* They form three genera with the following characters:

1. PAGURUS.—Frons non rostratus, truncatus. Manus anticæ sæpius compressæ, interdum subæquæ, sæpius sinistrâ majore, digitis apice corneis, in plano verticali claudentibus.

2. ANICULUS, D.—Frons triangulatè rostratus. Manus anticæ subæquæ, digitis apice corneis, in plano verticali claudentibus.

3. CLIBANARIUS, D.—Frons triangulatè rostratus. Manus anticæ subæquæ, plus minusive depressæ, digitis apice corneis, in plano horizontali claudentibus. Species *P. æqualis, zebra, humilis, globosi-manus*, Clibanario pertinent.

The species Pagurus aniculus may hereafter be named *Aniculus typicus;* the P. clibanarius, *Clibanarius vulgaris;* and the P. Bernhardus, *Bernhardus streblonyx.* The name Bernhardus pubescens, (see preceding volume, p. 270,) we propose to change to *B. scabriculus*, as Kröyer* has described a *Pagurus pubescens*, which is probably a Bernhardus.

Descriptiones Pagurideorum adhuc inedita.

BERNHARDUS OBESI-CARPUS.—Frons medio prominulus, obtusus. Regio carapasis antica paulo transversa nudiuscula. Oculi crassi et perbreves, aciculo longiores, squamâ basali ovatâ, subacutâ, integrâ. Antennæ externæ nudæ, basi multo longiore quam oculus, aciculo crasso, brevi, apicem articuli 3tii attingente. Pedes toti fere nudi et granulosi, non armati; antici inæqui; manu majore oblongâ, convexâ, symmetricâ, granulus nitidis partim seriatis, carpo multo crassiore, parce latiore. Pares 2di et 3tii crassiusculi, articulo 3tio supra

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*Tidsch. ii, 251, 252.

scabri-rugato et breviter hirsuto, tarso curvato, canaliculato. *Hab.* Valparaiso? *Long.* 2″.

BERNHARDUS ÆQUIMANUS.—Carapax sparsim pilosus, regione anticâ non oblongâ, fronte ad medium angulato, vix rostrato. Oculi cylindrici, aciculum antennalem longitudine æquantes, squamâ basali apice productâ et 3—4-denticulatâ. Antennarum externarum flagellum infra elongatè ciliatum. Pedes superficie granulati partim sparsim hirsuti, marginibus hirti; antici æqui, mediocres, manu breviter ellipticâ, parce latiore et longiore quam carpus, non costatâ, marginibus subspinulosis, carpo supra subspinuloso et hirto. Pedum 4 sequentium tarsi bene canaliculati, infra ciliati. *Hab.* Valparaiso. *Long.* 1½″.

BERNHARDUS CRINITICORNIS.—Frons medio parce angulatus. Regio carapacis antica non transversa. Oculi mediocres, aciculo antennali paulo longiores, squamâ basali apicem rotundatâ. Flagellum antennarum externarum infra crinitum non ciliatum. Pedes antici valde inæqui, nudiusculi, manu majore oblongâ, paulo longiore et latiore quam carpus, scabriculâ, spinulis subtilissimis 4—5-seriatis, margine inferiore fere recto, carpo minutè spinuloso. Pedes 2di 3tii laxè pubescentes, non spinulosi, tarso non canaliculato. *Hab.* portu "Rio Janeiro." *Long.* 9—10‴.

PAGURUS EUOPSIS.—*P. punctulato* affinis. Oculi fronte carapacis valde longiores, crassiusculi. Flagellum antennarum externarum nudum, articulis versus anteriorem extremitatem latere interno gibbosis; aciculum parvulum. Pedes antici sat inæqui, manu majore carpoque oblongis, extus spinulosis et hirsutis. Pedes 2di 3tii marginibus multo hirsuti, articulo 5to spinulis supra paulo armati, tarsis totis subteretibus, undique divaricatè hirsutis. *Hab.* ad insulam "Upolu" et in freto "Balabac." *Long.* 2½″.

CLIBANARIUS STRIOLATUS.—Regio carapacis antica fere quadrata. Oculi graciles, margine carapacis antico vix breviores, squamâ basali angustâ, acuminatâ, bidentatâ. Pedes antici subæqui, manubus brevibus carpisque supra spini-tuberculatis et pilosis, manu sinistrâ maris paulo majore. Pedes 2di 3tii supra infraque paulo hirsuti, multis lineis brunneis longitudinalibus ornati, tarso subterete, non breviore quam articulus penultimus, sinistro 3tii paris articulo 5to extus parce convexo, acie rectangulatâ superne instructo. *Hab.* insulâ "Tongatabu," et archipelago "Viti." *Long.* 2‴. *Paguro lineato*, Edw. propinquus.

CLIBANARIUS BRASILIENSIS.—Regio carapacis antica paulo oblonga. Rostrum bene triangulatum. Oculi gracillimi, margine carapacis antico non breviores, squamâ basali valde truncatâ et brevissimâ, pilis longis, margine apicali transverso instructâ. Pedes antici æqui, manu dextrâ parce majore. Pedes 2di 3tiique persparsim hirsuti, subnudi, tarso perbrevi, articulo 5to paris 3tii extus subcomplanato, parce convexo, supra subcarinato. Pedes colore pauci-lineati. *Hab.* portu "Rio Janeiro." *Long.* 1½″.

Clibanarius globosi-manus (Pag. globosi-manus, D.) P. *corallino*, Edw. adhuc partim descripto an differt? In specimine globosi-mani non attritâ, pedes 2di 3tii marginibus hirsuti non nudiusculi. Clibanariis aliis totis nobis lectis differt, superficie externâ articuli 5ti sinistri paris 3tii omnino hirsutâ.

II. MEGALOPIDEA.

The question of the maturity or immaturity of the Megalopæ and that of their true place in the natural system, still remain in doubt. Without touching on these points, at this time, I propose to describe some new genera and species pertaining to the group.

The species, however diverse, agree in the structure of the abdomen and its caudal appendages; in the position of the four antennæ *between* the eyes; in the articulations of the outer antennæ; in the inner antennæ folded longitudinally or obliquely either side of the beak; in the general form of the outer maxillipeds; in the large size and lateral position of the eyes without orbits; in the general structure of the legs; and in their habits. The beak is either horizontal or

flexed downward, and has usually a sharp prominent tooth either side of it, exterior to the inner antennæ.

The genus Megalopa, *Leach*, as now accepted, embraces two distinct sets of species—the *M. Montagui* and *armata* for which it was instituted by Leach, and the *M. mutica* of Desmarest. The former (the true Megalopæ) have the beak nearly horizontal, with rarely a tooth either side, and there is a reflexed spine on the ventral surface of the first joint of the 8 posterior legs. The latter has the beak bent downward vertically, and either side of it there is a prominent spine or tooth; the ventral surface of the base of the legs is unarmed. The *M. mutica* is very closely related to *Monolepis spinitarsus* of Say, the only difference being that the extremity of the posterior legs in this species of Monolepis bear 3 or 4 setæ rather longer than the tarsus, while the descriptions of the *mutica* make mention of no such setæ. The posterior legs in Monolepis fold up and overlie the carapax: but these legs are otherwise like the preceding, though somewhat smaller, and it is probable that this habit in the *M. mutica* has been overlooked, as these animals almost always swim with the posterior legs extended like the others, when taken and kept in a jar for examination, and they also have them extended when walking. These legs do not resemble at all the posterior pair in Porcellana or Galathæa. I had examined several species before I discovered this habit with regard to the posterior legs. The animal also throws the fourth pair of legs forward along or over the borders of the carapax, so that the extremity overlies the bases of the eyes and the tarsi hang down in front; and at the same time the two preceding pair are folded up and lie against the sides of the carapax outside of the 4th pair, or the third pair may be thrown forward like the 4th. A Sooloo species, and another common off Cape of Good Hope, were observed swimming with the legs thus disposed.

Say's genus Monolepis* also embraces two groups, alike in the deflexed front and the longish setæ at the extremity of the posterior tarsi. In one division, including the *M. inermis*, the tarsi are flattened styliform, and unarmed, with either lateral edge sparsely furnished with minute hairs; the fossa of the sternum, along which the abdomen lies when inflexed, has a prominent trenchant border; the depression on the carapax for the posterior legs is rather abrupt and somewhat neatly defined; the body is very convex and obese, with the sides high and vertical, and much wider behind than before, being gradually narrowed forward.

The other division has the tarsi unguiform, compressed, and spinous below, the antepenult spine always longest; the fossa of the sternum with flaring borders; the depression of the carapax for the posterior legs shallow concave; the body more flattened above, with the sides more oblique. This division corresponds to *Monolepis spinitarsus*.

Besides the preceding, there is another group of Megalopidea, examined by the author, resembling Megalopa of Leach, except that the tarsus of the posterior legs is narrow lamellar instead of unguiculate, and edged with longish setæ somewhat shorter than the tarsus.

There is still another group in which the front is horizontal and tricuspidate, the inner antennæ when retracted being exposed in the interval between the beak or inner cusp and either outer, lying in view as in Plagusia.

With these explanations we give the characters of the genera.

1. MONOLEPIS, *Say*.—Carapax fronte tricuspidatus sed valde deflexus ideoque frons superne visus medio non acutus sed truncatus. Pedes 5ti minores, super carapacem sæpe restantes, depressione ad eos recipiendos abruptâ, tarsis inermibus, depressis styliformibus, paris postici non depressis, apice 3—4 setis longiusculis (tarso paulo longioribus) instructo. Sterni fossa abdominalis marginibus bene prominens et subacuta.—*Monolepis inermis*, Say, typus est.

2. MARESTIA, *Dana*.—Carapax fronte uti in *Monolepi*. Pedes 8 postici ad basin infra non armati; 5ti minores, super carapacem sæpe restantes, depressione ad eos recipiendos parce concavâ; tarsis styliformibus, unguiculatis, spinis infra

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*Journ. Acad. Nat. Sci., Philada., i. 155.

armatis, paris postici apice setis longiusculis instructis.—Typus est *Monolepis spinitarsus*, Say. Hic pertineret quoque *Meg. mutica*, Desm. si ejus pedes postici setis longiusculis confecti; aliter genus alterum instituendum. Verbum "Marestia" clarissimum Desmarest commemorat.

3. Megalopa, *Leach*.—Carapax fronte simpliciter rostratus, rostro vix deflexo, acuto. Pedes 8 postici ad basin infra uni-spinigeri: 5ti minores, tarso styliformi.—Typus *Meg. Montagui*, Leach.[*]

4. Cyllene, *Dana*.—Carapacis frons uti in *Megalopa*. Pedes 8 postici ad basin infra uni-spinigeri; 5ti minores, tarso anguste lamellato, setis longiusculis partim ciliato.

5. Tribola, *Dana*.—Carapax fronte horizontalis tricuspidatus, rostro (vel cuspide medianâ) tenui, cuspidibus (vel dentibus) externis vix longiore. Antennæ internæ inter rostrum et cuspides externas apertè inflexæ. Pedes postici minores, tarso unguiculato setisque longis non instructo.

Descriptiones Megalopideorum adhuc inedita.

Marestia elegans.—Carapax antice angustus et superne visus bilobatus, lateribus fere parallelis, pone oculos vix salientibus. Pedes antici parvi, manu oblongâ, margine inferiore et partim superficie internâ remotè hirsutis. Pedes 2di marginibus sparsim ciliati, tarso infra 7-spinoso, ad basin tuberculum infra non gerente. Tarsi postici infra 6-spinosi, apice unguiculati et 4 setis longis instructi. *Hab.* Promontorio Bonæ Spei. *Long.* Carapacis 4—5'''. An Megalopa mutica *Kraussii* (Südaf. Crust. p. 54) et *De Haanii* (Fauna Japon. p. 167)? Sed pedes postici extremitate setis tarso paulo longioribus instructi.

Marestia Atlantica.—Carapax antice angustus et superne visus bilobatus, lateribus postice paulo divergentibus, pone oculos vix salientibus. Pedes antici parvi, manu oblongâ, nudâ aut nudiusculâ. Pedes 6 sequentes nudiusculi, tarso infra quinque spinas tuberculumque ad basin instar calcis gerente. Tarsi postici parvuli, sed setularum duabus paribus infra instructi, non spinosi. Apice unguiculati et tribus setis longis armati.—*Hab.* lat. aust. 6°, long. occ. 24°.

Marestia pervalida.—Carapax antice latus et superne visus obsolete quadrilobatus, lobis subæquis, lateribus postice non divergentibus, prope medium unidentatis. Pedes antici pervalidi, manu valde crassâ, tumidâ. Tarsi postici infra spinosi, apice tribus setis longiusculis armati.—*Hab.* lat. bor. 6°, long. orient. 173°.

Monolepis orientalis.—Sterni segmenta fossam sterni includentia antica margine interiore fere truncata, vix triangulata; segmenta proxima convexa, non tuberculigera. Tuberculus medianus inter aream buccalem et fossam sterni simpliciter subtriangulatus, antice acutis, postice hemisphericus, utrinque depressione deinde septo brevi antice et oblique producto cinctus. Tarsus pedis postici brevis, non unguiculatus, apice tribus setis longiusculis armatus, infra setulis paucis perbrevibus necque spinis instructus. *Hab.* in mari Suluensi. *Long.* carapacis 4'''.—M. inermis differt, sterni segmentis anticis intus non subtruncatis sed prominenter triangulatis, proximis unituberculatis, tuberculo mediano inter aream buccalem et fossam sterni tuberculis tribus composito.[†]

Cyllene hyalina.—Rostrum parce prominens. Carapax subovatus, lateribus pone oculos paulo saliens, postice inermis. Thorax infra ad extremitatem posteriorem inermis. Pedes antice mediocres, carpo inermi, manu paulo tumidâ, supra subgibbosâ, digitis hiantibus, apice inflexis et acutis. Pedes 2di 3tii 4tique subæqui, tarsis fere rectis, longis, articulo penultimo longioribus. *Hab.* in mari Atlantico juxta "Rio Negro" Patagoniæ, et in mari Pacifico prope "Valparaiso." *Long.* carapacis 3—4‴.

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[*] Malac. Pod. Brit. pl. 16. Leach describes three other species, (not noticed by Edwards.) in Tuckey's Exped. to the Zaire, (London, 1818,) p. 404. The *M. Cranchii* may be a true Megalopa; the others have a deflexed beak.

[†] The author is indebted to Prof. L. R. Gibbes, of Charleston, S. C., for the privilege of examining specimens of the *M. inermis*. They were obtained by him from the stomach of a fish off the Atlantic coast between New York and Charleston, in 1846. See Rep. Crust. in U. S. Collections, by Prof, Gibbes, in Proc. Amer. Assoc. Charleston, 1850, vol. iii. p. 192.

CYLLENE FURCIGER.—Rostrum elongatum, spiniforme, frontis latitudine non brevior. Thorax infra ad extremitatem posteriorum duabus spinis longis divergentibus postice productis armatus. Pedes antici angusti, carpo articuloque secundo spinâ brevi curvatâ armatis, brachio inermi. Tarsi 2di 3tii 4tique parce armati, styliformes.—*Hab.* in mari Suluensi.

TRIBOLA LATA.—Carapax late ovatus non pubescens, paulo longior quam latus, lateribus pone oculos parce undulatis, rostro lineari, dentibus frontis lateralibus rostro remotis, apice acutis et paulo divaricatis. Pedes antici parvuli, tenues, manu pedibus sequentibus vix crassiore. *Hab.* in mari Atlantico, prope insulas "Canary;" e stomacho piscis "Bonito" lecta. *Long.* corporis fere ½″.

TRIBOLA PUBESCENS.—Carapax oblongus, subovatus, pubescens, lateribus pone oculos undulatis, rostro lineari, dentibus frontis lateralibus rostro minus remotis. Pedes toti densè brevissimèque pubescentes; antici rostrum paulo superantes, angusti, inæqui, manu dextrâ non latiore quam carpus. Pedes 8 sequentes fere duplo longiores, 2dis brevioribus quam 3tii. *Hab.* in Archipelago "Paumotu" mari Pacifico.

Conspectus Crustaceorum, &c. Conspectus of the Crustacea of the Exploring Expedition under Capt. C. Wilkes, U. S. N. By JAMES D. DANA.

MACROURA.

We follow De Haan in placing the genus Galathæa with the Anomoura; and near it we arrange Æglea, which widely differs from most other related species in having penicillate instead of foliose branchiæ.

The Macroura, excluding these groups, includes three distinct sections or subtribes.

One, the "Fossores" of authors, or the THALASSINIDEA, has close relations on one side with the Paguri, and on the other with the Squillidæ. They constitute a line of gradation between these extremes, independent mostly of the other Macroura, and osculating only with the Astaci, although removed from them in general habit and structure. There is a diversity among the legs as to form and position, which is not found in any other Macroura, and calls to mind the Paguri. Moreover, there is in general a looseness of structure, a length of abdomen, and sluggish habit of body, unlike the trim compact forms of the typical Macroura. The anterior feet are thrown directly forward, and are thus fitted for the burrowing habits of the species.

The *second* subtribe—the ASTACIDEA—is composed of the highest grade of Macroura, approaching in some points of structure the Brachyura. This is seen in the fact that the sides of the carapax fold under and unite to the epistome, as is well shown in Scyllarus and less perfectly in Astacus; also in the absence or small size of the basal scale of the outer antennæ. The Astaci are the transition species between the other Astacidea and the Caridea, and in the genus *Paranephrops*, White, the antennary scale is not smaller than is common in the latter group. Yet they properly form part of the same section with the Scyllari and Palinuri, rather than a separate division as made by Milne Edwards; they differ from all the Caridea in the transverse suture across the carapax near its middle.

The *third* section—the CARIDEA—includes the typical Macroura, which have the sides of the carapax not soldered to the epistome, and a large basal scale to the outer antennæ.*

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* The Cumæ would constitute another section—*Cumidea*—if mature animals. But according to recent researches of Prof. Agassiz, as he has informed the author, they are in some cases, and probably in all, immature forms of Palæmon, Crangon, and other known Macroural genera.

These subtribes may be divided into families.

Subtribe 1. *Thalassinidea.* This section, as Milne Edwards observes, includes two strongly marked divisions; *one*, with only the ordinary thoracic branchiæ, and a *second* with the addition of *abdominal* branchial appendages, as in the Squillidæ. The former we name the *Thalassinidea Eubranchiata*, the latter, the *Thalassinidea Anomobranchiata*. The first group embraces three families, differing strikingly in outer maxillipeds and abdomen, as explained beyond. The second contains only two genera, *Callianidea*, Edw., and *Isæa*, Guerin—the last name was changed by Edwards to *Callianisea;* but as this word is so near Callianassa and Callianidea, a contraction to *Callisea* would be preferable.

Subtribe 2. *Astacidea.*—In this subtribe, we adopt De Haan's sections, except that we exclude the Megalopidea, and we do not associate the Thalassinidea with the Astacidea. The sections or families are *Scyllaridæ*, *Palinuridæ*, *Eryonidæ* and *Astacidæ.*

Leach in 1819 divided the old genus Astacus, naming the marine species (Homarus *Edw.*) *Astacus*, and the fresh water (Astacus *Edw.*) *Potamobius.* Edwards' division, of like character, now generally accepted, was not published till 1837. Leach hence has the priority. But according to Leach, the name Astacus is appropriated, not to the typical part of the group, that including the *Astacus fluviatilis* of old authors, or *Cancer Astacus* of Linnæus, and which embraces at the present time numerous species, but to that including the *Cancer Gammarus* of Linnæus, still but a small group. There is hence much objection to the names of Leach, and moreover much confusion would now ensue from their adoption. There seems therefore to be sufficient reason for rejecting them, if it be of no weight that they have remained for 30 years unrecognized by British authors. They are adopted in the Catalogue of British Crustacea of the British Museum, published in 1850, but not in the general catalogue of 1847.

Subtribe 3. *Caridea.*—In arranging the Caridea into groups, much stress is usually laid upon external form and length of beak. The unimportance of these characters is inferrible from the fact that they involve no essential variations of structure. Moreover, in a single natural group we may find both the long and short beak. In the Crangon group, for instance, in which the beak is usually very short and the body depressed, we have a species with the beak and habit of a Hippolyte.

There are other characters of more fundamental value; and these have been brought forward by De Haan. The mandibles afford the distinctions alluded to. In one section they are very slender and are bent nearly at a right angle, without enlargement at the crown. In another they are very stout, and somewhat bent above with a broad dilated crown. In a third, they are stout, but not bent, and have a dentate summit. In a fourth they have, in addition to a projecting lateral crown, a large summit process, which is often oblong and very prominent. These forms are characteristic of different sections of the Caridea.

The fact that the mandibles bear a palpus or not is of much less importance; for the portion of the mandible which is most essential to its functions is the crown. Among the Palæmoninæ, there are genera having a mandibular palpus, and others without one; while the two kinds in other respects are remarkably close in their relations. We have found moreover that in this group, the length of the palpus varies with the disjunction of the 2d and 3d flagella of the inner antennæ. If these flagella are separate to their bases nearly, (as in Palæmon,) the palpus is long and 3-jointed; if united for some distance up, the palpus becomes short and finally only 2-jointed (Palæmonella;) if united nearly or quite to their summits, there is no palpus.*

In the arrangement of the genera into families, the fact *whether the* 1*st or* 2*d*

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* In our genus *Palæmonella*, the palpus of the mandible is 2-jointed, and in *Anchistia*, which is closely like Palæmon in habit in some of its species, there is no palpus, as in the Pontoniæ; and thus the transition to the Pontoniæ from Palæmon is exceedingly gradual. Harpilius and Œdipus (Pontoniæ of authors) fill up the interval between Anchistia and the true Pontoniæ. They are all similar in having the 2d pair of legs largest, and in other prominent characteristics.

The base of the inferior left canine was found in its socket; the remainder was found broken; the fragments were put together so as to make almost a complete tooth which presents no specific characters of any importance; the anterior margin is more rounded than in D. torquatus, and the groves on the posterior external, and internal faces of the fang are deeper; the young of D. torquatus in the depth of the grooves agrees perfectly with our fossil, which, however, from the wearing of the tooth must have been an adult.

The condyloid process of the right lower jaw was found broken off just below the neck; in comparison with D. torquatus, it is less concave in its external outline, and there is a slight depression externally just below the end of the articular surface; the posterior face a little below the articular part is more compressed and less flattened than in D. torquatus.

The inferior extremity of the humerus is perforated; the articular faces are in no respect different from those of D. torquatus.

The same is the case with the innominatum and the femur.

Of the left posterior foot is preserved the calcaneum, the outer metatarsal, the first and second phalanges of the outer toe and the first phalanx of the inner toe; all these bones completely resemble the corresponding parts of D. torquatus.

As compared with Platygonus compressus, the calcaneum shows important characters, which may be used in separating the bones of these animals, if they should again be found mixed together.

In Platygonus the astragalian face is not distinctly defined at its supero-external part, but is confluent with the depression existing in that part of the bone behind the fibular process.

In Sus and Dicotyles this face is distinctly separated from the valley between the two processes, and the inferior part of the astralagian process is much less thickened than in Platygonus; the whole bone is more slender and less flattened than in Platygonus.

My reasons for considering the cuboides figured by me* as belonging to Platygonus, are as follows:

From teeth there was evidence of two specimens of Platygonus of different ages; portions of three calcaneal bones of the left side were found, two of which were precisely similar; the third is the one here mentioned as belonging to Dicotyles. The larger of the two similar bones fitted perfectly with the extremity of a tibia, an astralagus and a cuboides forming a considerable portion of the tarsus; to this cuboides, however, the metatarsal bone above described cannot be adapted.

This will be the proper place for correcting an important error in the memoir on Platygonus already quoted: on page 270, pl. 4, figs. 23 and 25, is represented what was considered the *inner metatarsal*. On comparison this bone is found to correspond accurately with the inner right metacarpal of Dicotyles; there are two specimens of this bone, differing slightly in size, and the smaller one of which has lost its lower extremity, and evidently belonged tó a young animal. We have therefore the same reason to refer this to Platygonus as the tarsal bones above mentioned.

I should also notice here, that the superior canines of very young Dicotyles resemble very closely those of Platygonus but are not so much compressed, and have only a single angulated line at the anterior part of the base of the tooth.

On account of the very strong resemblance between the dentition of Platygonus and Dicotyles, I am inclined to consider the former as rather Suiline than Tapiroid in its affinities; the undulated outline of the lower jaw in the Dicotyles group, reaches its maximum in the great dilatation of the angle of the jaw in Platygonus; the compression of the canines is carried to a greater degree than in any other genus, and the molar structure is reduced to the simplest Pachydermal form by the absence of all accessary tubercles.

The dimensions of the fragments of Dicotyles depressifrons indicate an animal a little larger than the adult D. torquatus; the only measurements that can be given are the following, in English inches:

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* Memoirs Am. Acad. of Science and Arts, New Series, Vol. 3, pl. 4, figs. 25, 26.

Distance between the frontal foramina 1·2.

Third premolar: lateral diameter ·45: antero-posterior diameter ·4.

Fourth premolar: lateral diameter ·46: anterio-posterior diameter ·5.

First molar: lateral diameter ·55; antero-posterior diameter ·63.

Inferior canine: length 3.75; posterior breadth ·48; radius of curvature 2.75.

Humerus: diameter of inferior extremity 1.52; breadth of larger articular groove, .75; smaller groove ·4; least distance from lower margin of larger groove to foramen ·67.

Innominatum: diameter of acetabulum 1·2; least breadth of ilium 1·0.

Femur; length 6·85; from fovea on head, to extremity of trochanter major 1·72; breadth of tibial articular grove anteriorly .8; transverse diameter of condyles posteriorly 1·55.

Metatarsal: length 2·87; of inferior articular surfaces, lateral diameter ·46; antero-posterior diameter ·57; length of first phalanx 1·25; second phalanx ·95.

Calcaneum: length 2·45: greatest breadth 1·12; from fibular to apical process ·91.

Condyle of lower jaw; breadth 1·2: antero-posterior diameter of articular surface ·6.

Protochœrus prismaticus Lec. Am. Journ. Sc. 2nd series 5, 105.

To the description of the teeth of this animal, I have only to add that the fang of the canine is very similar to that of Sus babiroussa; the posterior molar bears considerable resemblance to that of Sus babiroussa, as represented by Blainville, (plate VIII.) although the student will fail to find the resemblance in nature. The Anthracotherium tooth figured in Owen's Odontography, with which I formerly compared this tooth, differs in having the lobes connected by an elevated ridge.

The dimensions of the teeth are as follows, and indicate an animal smaller than a Peccary.

Inferior canine: length of worn surface 1.35; breadth ·3; radius of curvature of posterior face and margin 2.46.

First inferior molar: lateral diameter ·39; antero-posterior diameter ·52.

Last inferior molar: breadth ·5; from posterior lobe to middle lobe ·26; to summit of anterior lobe ·58.

Notice of a fossil Dicotyles from Missouri.

By John L. Le Conte, M. D.

The Tooth which forms the subject of this communication, was found with some mastodon bones in Benton County, Missouri, and was presented to me by Dr. R. W. Gibbes.

It is a right lower canine, wanting the fang, and attached to a small piece of jaw, containing alveoli of three incisors.

The tooth has precisely the same direction as in D. torquatus, but is somewhat less compressed; the anterior edge is very acute; on the part of the fang which remains, no vestige of external and internal grooves exists; the posterior groove is well marked as in D. torquatus; on the outer surface of the tooth, nearer the posterior than the anterior margin, is an elevated ridge, acute at summit, which extends along the whole of the enamelled part of the tooth. This character is not to be found in D. torquatus; the very obsolete elevation which exists there being a consequence of the continuation of the grooves impressed on the internal face of the fang; I have also failed to discover a similar elevated line on the canine of any species of the Sus that has come under my observation.

As this seems to be a character of sufficient importance to separate the species co-existent with the Mastodon, from any now living, I would give it the name of Dicotyles costatus.

Although there is no character in this canine to make a reference to Dicotyles more certain than to Sus, yet as the latter genus has not been distinctly proved to

G. 5. **Glaucothoe**, *Edw.*—Manus ac in *Axio*. Pedes 2di 3tique pediformes ac in *Paguro*; 4ti 5tique subcheliformes. Antennarum internarum flagella articulo precedente breviora.

Fam. 2. CALLIANASSIDÆ.

G. 1. **Callianassa**, *Leach.*—Oculi sublamellati, corneâ medianâ et non marginali. Flagella antennarum internarum articulo precedente longiora. Pedes 1mi grandes, bene didactyli; 2di didactyli minores, 3tii articulo penultimo late lamellati.

G. 2. **Trypæa**, *Dana.*—Pedibus *Callianassæ* affinis. Flagella antennarum internarum articulo precedente breviora, antennis subpediformibus.

Fam. 3. THALASSINIDÆ.

G. 1. **Thalassina**, *Latreille.*—Manus validæ, multo inæquæ, digito immobili majoris brevi. Pedes 2di articulo penultimo lamellati, 3tii 4ti 5tique angusti, monodactyli.

Legio 2. THALASSINIDEA ANOMOBRANCHIATA.

G. 1. **Callianidea**, *Edw.*—Pedibus *Callianassæ* affinis, anticis bene didactylis, 2dis et 3tiis minoribus, didactylis, compressis, 4tis 5tisque subcylindricis. Oculi ac in *Callianassa*.

G. 2. **Callisea**.—(Isæa, *Guerin*. Callianisea, *Edw.*) Forsan a **Callianidea** nihil differt, teste Edwardsio (Crust. ii. 321.)

Subtribus II. ASTACIDEA.

Fam. 1. SCYLLARIDÆ.

1. *Carapax oblongus vel subquadratus, non transversus. Oculi versus cephalothoracis angulos externos insiti.*

G. 1. **Scyllarus**, *Fabr.*—Rostrum valde saliens. Latera carapacis non incisa. Antennæ externæ inter se fere contiguæ. Palpus maxillipedis externi flagello confectus. Branchiæ numero 21. Species, *Sc. sculptus, latus, squamosus, equinoxialis, Haanii, Sieboldi.*

G. 2. **Arctus**, *Dana*, (Scyllari subgenus 5tum, *De Haan.*)—Rostrum perbreve, truncatum. Antennæ externæ inter se remotæ. Palpus maxillipedis flagello carens. Branchiæ 19. Sp. *A. ursus*, D. (Scyllarus arctus, *Auct.*)

2. *Carapax plus minusve transversus, lateribus non incisus. Oculi in angulis externis.*

G. 3. **Thenus**, *Leach.*—Oculi oblongi. Rostrum bilobatum. Branchiæ 21. Species. T. *orientalis*.

3. *Carapax plus minusve transversus, lateribus incisus. Oculi angulis externis valde remoti.*

G. 4. **Parribacus**, *Dana*, (Scyllari subgenus 2dum, *De Haan.*)—Rostrum subtriangulatum. Antennæ externæ inter se fere contiguæ. Oculi fere in medio inter antennas internas et angulos cephalothoracis externos. Branchiæ 21. Species. *P. antarcticus et P. Parræ* (Ibacus antarcticus et I. Parræ, *Auct.*)

G. 5. **Ibacus**, *Leach.*—Rostrum bilobatum. Antennæ externæ inter se paulo remotæ. Oculi versus rostrum insiti. Branchiæ 21. Species. *I. Peronii, I. ciliatus*, De Haan, et *I. novemdentatus*, Gibbes.*

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* Species Scyllaridarum enumeratæ in "Hist. Nat. des Crustacés," Edwardsii editæ, sequentibus exceptis: *Sc. Haanii*, Siebold (Faun. Japon. 152. pl 38, f. 1,) *Sc. Sieboldi*, De Haan (Faun. Jap. 152, pl. 36, f. 1,) *Ibacus ciliatus*, Siebold, (Faun. Jap. 153, pl. 36, f. 2,) *Ibacus novemdentatus*, Gibbes, (Nuntiis Assoc. Sci. Amer. 1850, Charleston, iii. 193.)

Fam. 2. PALINURIDÆ.

G. 1. PALINURUS, *Fabr.* (Palinuri communes, *Edw.*)—Carapax vix rostratus. Annulus antennalis supra angustissimus, curvatus. Antennæ externæ basi fere contiguæ. Antennæ internæ flagellis breves.—*Linuparus*, Gray, hic inclusus.

G. 2. PANULIRUS, *Gray*, (Palinuri longicornes, *Edw.*)—Carapax rostratus. Annulus antennalis supra latus, subquadratus et horizontalis. Antennæ externæ basi non contiguæ; antennæ internæ flagellis longæ.

Fam. 3. ERYONIDÆ.

Genus ERYON, *Desmarest.*

Fam. 4. ASTACIDÆ.

1. *Manus crassæ et latæ, marginibus arcuatæ, superficie convexæ* (ASTACINÆ.)

A. Branchiæ 19. Segmentum thoracis ultimum non mobile—Species marinæ

G. 1. HOMARUS, *Edw.*—Rostrum tenue, utrinque paucidentatum. Squama basalis antennarum externarum perbrevis.

B. Branchiæ 17—18. Segmentum thoracis ultimum mobile. Rostrum integrum vel utrinque unidentatum.—Species fluviales.

G. 2. ASTACOIDES, *Guerin.*—Segmentum abdominis *maris* 1mum appendicibus carens.—Hic referemus subgenera Erichsoni *Astacoides*, *Engæus* et *Cheraps.*[*]

G. 3. ASTACUS.—Segmentum abdominis *maris* 1mum appendicibus instructum. Hic referemus subgenera Erichsoni *Astacus* et *Cambarus*, *illo* branchiis 18, *hoc* branchiis 17, instructo.

2. *Manus prismaticæ lateribus fere rectæ.* (NEPHROPINÆ.)

G. 4. NEPHROPS, *Leach.*—Rostrum utrinque dentatum vel spinosum. Squama basalis antennarum externarum basi vix longiores.—Species marinæ.

G. 5. PARANEPHROPS, *White.*[†]—Rostrum uti in *Nephrops.* Squama basalis antennarum externarum basi dimidio longiores.—Species fluviales?

Subtribus III. CARIDEA.

Legio I. PALÆMONINEA.

Fam. I. CRANGONIDÆ.

Subfam. 1. CRANGONINÆ.—Pedes 1mi 2dis crassiores. Maxillipedes externi pediformes. Digitus mobilis in palmam claudens, immobilis spiniformis. Pedes 2di non annulati.

G. 1. CRANGON, *Fabr.*—Rostrum brevissimum. Oculi liberi. Pedes 2di chelis armati, 4ti 5tique acuminati, gressorii.

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[*] Archiv. f. Nat. 1846, p. 86 et 375. Astaci Subgenera Erichsono instituta sequentia sunt.

1 ASTACOIDES. Pedes abdominales ramis membranacei, 1mis maris obsoletis. Antennæ externæ internis exteriores.

2. ASTACUS. Pedes abdominales (lamellis caudalibus inclusis) calcarei, 1mis maris elongatis. Antennæ externæ internis exteriores. Pedes 5ti branchias gerentes, branchiis numero 18.

3 CAMBARUS. Pedes abdominales (lamellis caudalibus inclusis) calcarei, 1mis maris elongatis. Antennæ externæ internis exteriores. Pedes 5ti branchias non gerentes, branchiis numero 17.

4. CHERAPS. Pedes abdominales calcarei, 1mis maris obsoletis; lamellæ caudales partim membranacei. Antennæ externæ internis exteriores. Pedes 5ti branchias non gerentes, branchiis numero 17.

5. ENGÆUS. Antennæ externæ sub internis. Pedes 5ti branchias gerentes, branchiis numero 18.

Textura appendicium abdominalium discrimen genericum justum non videtur, neque situs antennarum externarum. An auctoritatis gravis numerus branchiarum? non credimus.

[†] A. White, in Misc. Zool. Gray 79, 1842 et "Voy. Erebus and Terror," pl. 3, f. 1.

G. 2. Sabinea, *Owen.*[*]—Rostrum brevissimum. Oculi liberi. Pedes 2di chelis carentes; 4ti 5tique acuminati, gressorii.

G. 3. Argis, *Kröyer.*[†]—Rostrum nullum. Oculi sub carapace fere occulti. Pedes 2di chelis armati.

G. 4. Paracrangon, *Dana.*—Rostrum elongatum. Oculi liberi. Pedes 2di obsoleti, 4ti 5tique acuminati, gressorii.

Subfam. 2. LYSMATINÆ.—Pedes 1mi 2dis crassiores. Maxillipedes externi pediformes. Digiti alter ad alterum claudentes. Pedes 2di annulati.

G. 1. Nika, *Risso.*—Rostrum breve. Antennæ internæ duobus flagellis confectæ. Pedes antici impares, uno chelato, altero monodactylo. Carpus paris 2di elongatus annulatus.

G. 2. Lysmata, *Risso.*—Rostrum elongatum, subensiforme. Antennæ internæ tribus flagellis confectæ. Pedes antici ambo chelati. Carpus paris 2di elongatè filiformis.

G. 3. Cyclorhynchus, *De Haan.*[‡]—Rostrum sat breve, compressum et suborbiculare. Carpus 2dus brevis, pauci-annulatus.

Subfam. 3. GNATHOPHYLLINÆ.—Pedes 2di 1mis crassiores. Maxillipedes externi lati, operculiformes.

G. 1. Gnathophyllum, *Latreille.*

Fam. 2. Atyidæ.

Subfam. 1. ATYINÆ.—Pedes thoracici palpo non instructi.

G. 1. Atya, *Leach.*—Rostrum breve, depressum. Antennæ internæ flagellis duobus confectæ. Pedes 4 antici sat breves, carpis sublunatis, cuspide inferiore manum ferente, digitis penecillo setarum longo ad apicem armatis; 3tii 5tis multo longiores et crassiores.

G. 2. Atyoida, *Randall.*[§]—Rostro, antennis pedibusque anticis *Atya* affinis. Pedes 3tii tenues, 5tis breviores. [An distinctio valida?]

G. 3. Caridina, *Edwards.*—Rostrum sat breve sat longum. Antennæ internæ flagellis duobus confectæ. Pedes 2di 1mis longiores, digitis parium amborum apice penecillatus, carpis 1mis perbrevibus et antice excavatis, 2dis subcylindricis, oblongis.

Subfam. 2. EPHYRINÆ.—Pedes thoracici palpo instructi.

G. 1. Ephyra, *Roux, De Haan.*[‖]—Rostrum dentatum. Antennæ internæ flagellis duobus confectæ. Pedes 4 antici parvi, nudi vel nudiusculi. Pedes 6 postici graciles.

Fam. 3. PALÆMONIDÆ.

Subfam. 1. ALPHEINÆ.—Pedes 1mi crassiores, chelati, 2di filiformes, carpo sæpius annulati et chelati. Mandibuli palpigeri.

G. 1. Alpheus, *Fabr.*—Rostrum brevissimum. Antennæ internæ flagellis duobus confectæ. Oculi sub carapace occulti. Manus paris 2di major non inversa, digito mobili superiore. Pedes 2di carpo filiformes, annulati. Maxillipedes externi subtenues, mediocres. Species maris calidioris.

G. 2. Betæus, *Dana.*—Rostrum nullum. Oculis et ceteris *Alpheo* plerumque affinis. Manus paris 2di major fere inversa, digito mobili inferiore vel exteriore.—Species maris frigidioris.

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[*] Owen, Append. "Voy. Capt. Ross," p. 82.—*Crangon septemcarinatum*, Sabine.

[†] Tidschrift, iv. 1843, p. 217.

[‡] Faun. Japon. Crust., p. 174,

[§] Journ. Acad. Nat. Sci. Philad. viii. p. 140.

[‖] De Haan, Faun. Japon. p. 185, pl. 46, f. 7.

G. 3. Alope, *White.*[*]—Rostrum breve, inter spinas duas longas insitum hisque sæpe partim celatum. Antennæ internæ flagellis duobus confectæ. Maxillipedes externi longissimi. Oculi paulo salientes.

G. 4. Athanas, *Leach.*—Rostrum breve. Antennæ internæ flagellis tribus confectæ. Oculi paulo salientes. Pedes 2di carpo annulati.

G. 5. Hippolyte, *Leach.*[†]—Rostrum sat longum, plus minusve ensiforme, non mobile. Abdomen medio deflexum. Antennæ internæ flagellis duobus confectæ. Oculi salientes. Pedes 2di carpo annulati.

G. 6. Rhyncocinetes, *Edw.*—Rostrum ensiforme, mobile, fronte articulo conjunctum. Oculi antennæque uti in Hippolyte. Pedes 2di carpo non annulati.

[Ubi pertinet genus sequens?

G. Autonomea, *Risso.*—Pedes antici crassi, chelati. Pedes 2di non chelati et carpo non annulati, 3tiis similes. Maxillipedes externi tenues. Rostrum breve. Oculi salientes. Antennæ internæ flagellis duobus confectæ; externæ squamâ basali non instructæ.]

Subfam. 2. PANDALINÆ.—Pedes antici gracillimi, non chelati, 2di filiformes, carpo annulati.

G. Pandalus, *Leach.*

Subfam. 3. PALÆMONINÆ.—Pedes 4 antici chelati, 2di 1mis crassiores. Carpis nullis annulatis. Pedes nulli palpigeri.

1. *Antennæ internæ duobus flagellis confectæ. Mandibulæ non palpigeræ.*

G. 1. Pontonia, *Latr.*—Corpus depressum. Rostrum breve. Oculi parvuli. Maxillipedes suboperculiformes, articulo 2do lato, 3tio 4toque simul sumtis longiore, his subcylindricis.

G. 2. Œdipus, *Dana.*—(Pontonia, *Auct.*) Corpus plus minusve depressum. Rostrum longitudine mediocre. Oculi permagni. Maxillipedes externi latiusculi, articulis totis latitudine fere æquis. Tarsi infra elongatè gibbosi.

G. 3. Harpilius, *Dana.* (Pontonia, *Auct.*[‡])—Corpus non depressum. Rostrum longitudine mediocre. Oculi magni. Maxillipedes suboperculiformes, articulo 2do lato, 3tio 4toque simul sumtis breviore, his subcylindricis. Tarsi uncinati, infra non gibbosi.

G. 4. Anchistia, *Dana.*—Rostrum tenue, sæpius ensiforme et elongatum. Corpus vix depressum, sæpe compressum. Oculi mediocres; antennæ duobus flagellis instructæ, unâ parce bifidâ. Maxillipedes externi omnino tenues, pediformes.

2. *Mandibulæ palpigeræ.*

a. Oculi aperti.

G. 5. Palæmonella, *Dana.*—Corpus non depressum. Rostrum sat longum, dentatum. Oculi mediocres. Mandibularum palpus bi-articulatus, perbrevis. Antennæ internæ flagellis duobus confectæ, uno apicem bifido. Maxillipedes externi tenues.

G. 5. Palæmon, *Fabr.*[‖]—Corpus non depressum. Rostrum longum, dentatum. Oculi mediocres. Palpus mandibularum 3-articulatus. Antennæ internæ flagellis tribus confectæ. Maxillipedes externi tenues. Pedes 2di nunquam lamellati.

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[*] Ann. and Mag. Nat. Hist. [2], i. 225.

[†] Periclimenes *Costa*, (Ann. dell' Acad. degli Aspir. Nat. di Napoli, ii 1844.) Hippolyto affinis et vix differt, teste Erichsono. Arch. f. Nat. 1846, p. 310.

[‡] Pontoniæ veræ Œdipis et Harpiliis habitu multo differt; Pontoniarum oculis parvulis, abdomine valde inflexo, et modo vitæ sæpius uti in Pinnotheris; aliorum oculis pergrandibus, abdomine minus inflexo, animalibus modo vitæ liberis, inter ramos corallorum sæpe natantibus. Pontonia macrophthalma, *Edw.* Œdipo pertinet.

[‖] *Leander*, Desmarest, (Ann. Ent. Soc. France, 1849, p. 87.) a Palemone vix differt, abdomine ad articulationem 3-tiam inflexo non discrimine valido.

G. 7. HYMENOCERA, *Latr.*—Corpus non depressum. Rostrum sat longum. Oculi mediocres. Pedes 2di tenuiter laminati, latissimi; 1mi tenuissimi, manu minutâ. Maxillipedes externi subfoliacei.

b. Oculi sub carapace celati.

G. 8. CRYPHIOPS, *Dana.*—Rostrum longitudine mediocre. Oculi parvuli, omnino occulti. Antennæ internæ flagellis tribus confectæ. Maxillipedes externi subtenues.

[Ubi pertinet Genus TYPTON, *Costa,* (Annal. dell' Acad. degli Aspir. Nat. di Napoli, ii, 1844); squamâ basali antennarum externarum carens; Pontoniæ affinis.]

Subfam. 4. OPLOPHORINÆ.—Pedes 1mi sive didactyli sive vergiformes; 2di chelati, crassiores. Squama antennarum externarum acuminata, extus spinis armata.

G. 1. OPLOPHORUS, *Edw.*—Corpus non compressum. Rostrum longum, dentatum. Antennæ internæ flagellis duobus confectæ. Pedes toti palpigeri, 4 antici chelati. [Abdominis dorsum processubus spiniformibus uno vel pluribus armatum.]

G. 2. REGULUS, *Dana.*—Rostrum longum, dentatum. Antennæ internæ flagellis duobus confectæ. Pedes nulli palpigeri, 2 antici non chelati, 2di crassè chelati. Mandibularum palpus 3-articulatus. [Abdominis segmentum 3tium dorso postico instar spinæ longæ productum.]

Legio II. PASIPHÆINEA.

Fam. I. PASIPHÆIDÆ.

G. 1. PASIPHÆA, *Savigny.*—Rostrum obsolescens. Antennæ internæ flagellis duobus confectæ. Pedes palpigeri, palpis elongatis. Pedes 4 antici subæqui, manubus gracilibus.

Legio III. PENÆINEA.

Fam. I. PENÆIDÆ.

G. 1. SICYONIA, *Edw.*—Pedes 6 antici lineares, 4 postici non annulati. Carapax breviter rostratus, semicalcareus, dorso carinato. Pedes abdominales laminâ unâ instructi. Maxillipedes 2di 3tiique non palpigeri. Antennæ internæ perbreves.

G. 2. PENÆUS, *Latr.*—Pedes 6 antici lineares, 4 postici non annulati. Carapax elongato-rostratus, rostro ensiformi. Pedes abdominales laminis duabus instructi. Maxillipedes externi bene palpigeri.—Hic referemus genus "*Aristæus*" [Duvernoy, Ann. des Sci. Nat. xv, 1841, pl. 4.]

G. 3. STENOPUS, *Latr.*—Pedes 6 antici lineares, 3 postici longi, annulati. Rostrum longitudine mediocre. Maxillipedes externi brevissimè palpigeri.

G. 4. SPONGICOLA, *De Haan.**—Pedes 4 antici filiformes, 2 sequentes unus vel ambo crassissimi; 4 postice non annulati. Carapax bene rostratus, rostro subensiformi. Maxillipedes externi non palpigeri.

Fam. 2. SERGESTIDÆ.

G. 1. SERGESTES, *Edw.*—Carapax brevissime rostratus. Pedes thoracis non palpigeri, 2di 3tiique obsoletè didactyli, 5ti parvuli.

G. 2. ACETES, *Edw.*—Carapax minute rostratus. Pedes thoracis non palpigeri, 2di 3tiique obsoletè didactyli, 5ti obsoleti.

G. 3. EUPHEMA, *Edw.*—Carapax bene rostratus. Pedes thoracis elongato-palpigeri, 6 antici didactyli, manubus parvulis, 4 postici filiformes, ciliati, non annulati. Branchiæ foliosæ. Abdomen dorso uni-spinosum—An hujus sedis est?

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* Faun. Japon. Crust. p. 189, tab. 46, f. 9

Fam. 3. EUCOPIDÆ.

G. 1. EUCOPIA, *Dana*.—Carapax non rostratus, fronte integro. Pedes thoracis elongato-palpigeri, palpis natatoriis. Maxillipedes 2di 3tii et pedes 1mi monodactyli et prehensiles, unguiculo ad articulum precedens claudente.

Descriptiones Crustaceorum Macrourorum adhuc ineditæ.

Subtribus I. THALASSINIDEA.

Legio I. THALASSINIDEA EUBRANCHIATA.

Fam. GEBIDÆ.

GEBIA PUGETTENSIS.—Frons tridentatus, dente mediano triangulatus, superficie supernà usque ad suturam dorsi transversam scabrà et hirsutà. Manus marginibus pilosa, non spinulosa nec dentata, superficie釘 externà lævis non costata, lineàque densè hirsutà longitudinaliter notata, digito inferiore dentiformi, crasso, acuto, non incurvato, digito mobili elongato, inermi, margine piloso. Pedes 2di infra longissimè ciliati. Antennæ externæ quoad basin partim pilosæ, flagellis paulo hirsutis. Segmentum caudale transversum, rectangulatum, integrum. *Hab.* in freto Pugettensi, Oregoniæ. *Long.* 2″.

Fam. CALLIANASSIDÆ.

CALLIANASSA GIGAS.—Frons paulo triangulatus. Oculi complanati. Manus major valde compressa, lævis, carpo non duplo longior, digitis brevibus, dimidio manus brevioribus, sparsim hirsutis, consimilibus, non hiantibus, superiore arcuato, acuto, brachio angusto, ad basin infra dentigero sed vix latiore, paululo longiore quam corpus, intus vix dentato. Segmentum caudale appendicibus caudalibus vix brevius. *Hab.* in freto Pugettensi, Oregoniæ. *Long.* 4½″.

TRYPÆA AUSTRALIENSIS.—Frons non triangulatus. Pedes antici valde compressi, brachio carpo manuque pedis majoris supra acutis. Manus major lata, lævis, carpo paululo longior; digitis fere dimidii manus longitudine, non hiantibus, intus subtiliter denticulatis, superiore paulo longiore, arcuato, carpo paulo minore quam manus, brachio cum processu cultriformi juxta basin infra armato. Segmentum caudale non longius quam latum, postice arcuatum. *Hab.* in oris Illawarræ Australiæ orientalis. *Long.* 2¾″.

Fam. THALASSINIDÆ.

THALASSINA GRACILIS.—Carapax lævis, rostro perbrevi, acuto, margine extraorbitali acuto. Abdomen sparsim pubescens, marginibus integris, segmento caudali paulo oblongo, postice bene rotundato, non longiore quam appendices caudales. Pedes 1mi subæqui, valde compressi, manu angusto-elongatà, margine superiore subacuto, breviter spinoso, inferiore integro et inermi, digito mobili paulo breviore quam pars manus anterior, angusto, fere recto, seriatim pubescente, digito immobili plus dimidio breviore, acuto. Pedes 6 postici tenues; 5ti paulo breviores. *Hab.* in oris insulæ "Telegraph," juxta "Singapore." *Long.* 2½″.

Subtribus II. ASTACOIDEA.

Fam. SCYLLARIDÆ.

ARCTUS VITIENSIS.—Carapax subtilissimis plumulis pubescens, spinà pone medium frontis et alterà gastricà armatus, versus orbitam utrinque subcarinatus et 1—2-dentatus. Antennæ internæ nudiusculæ, articulo basis penultimo fere duplo longiore quam ultimus. Antennæ externæ extremitate truncatæ, articulo ultimo apice 5-lobato, lobis oblongis, interno breviore, articulo 2do ultimum fere superante, extus unidentato, intus 3-dentato, superficie carinatâ, carinâ integrâ. Pedes nudi, subteretes, inermes, 2dis pergracilibus, tarso 2do duplo longiore quam 3tius. *Hab.* in archipelago Vitiensi ("Fejee"). *Long.* 1".

Fam. ASTACIDÆ.

ASTACUS LENIUSCULUS.—Rostrum tridentatum, dentibus acutis, medio tenuiter elongato. Carapax lævis, punctulatus, lateraliter pone rostrum utrinque 2 spinosus; areolâ inter suturas longitudinales post-dorsales latâ. Pedes antici compressi, inermes, non tuberculati, manu lævi, punctulatâ, carpo paulo oblongo, intus recto, inermi, apice interno acuto excepto, brachio antice denticulato, apice interno elongate acuto, dorso unispinoso. Pedes sequentes nudiusculi. Segmentum caudale parce oblongum, lateribus fere parallelis. Pedes 5ti branchias parvas gerentes. *Hab.* flumine "Columbia," Oregoniæ. *Long.* 4".

ASTACOIDES NOBILIS.—Rostrum sat longum fere integrum, apice obtusum, utrinque obsolete unidentatum, basi antennarum externarum paulo brevius. Carapax lateraliter infra basin rostri obsolete utrinque armatus. Abdominis segmenta utrinque paulo uni-tuberculata, *junioris* tuberculis obsolescentibus; segmentum 2dum prope marginem lateralem spinis brevibus armatum; segmentum caudale paulo oblongum. Pedes antici æqui, crassi, carpo intus valde trispinoso, manu infra supraque marginatà et breviter dentatâ, superficie fere lævi, nudâ. Epistomatis processus medianus anticus triangulatus et valde elongatus, et perangustus. *Hab.* Australiâ orientali? *Long.* 5".

PARANEPHROPS TENUICORNIS.—Rostrum elongatum, acuminatum, tenue, bases antennarum longitudine superans, utrinque 4-spinosum et posterius super carapacem utrinque aliis spinis duabus. Pedes 8 postici gracillimi. Pedes antici longi, manu vix crassiore quam carpus, margine superno biseriatim spinoso, superficiebus internâ externâque uniseriatim spinosis, margine inferiore et superfice proximâ spinuli-scabris et non seriatim spinosis. *Hab.* in fluminibus prope portum "Bay of Islands," Novi-Zealandiæ.

Subtribus III. CARIDEA.

Legio I. PALÆMONINEA.

Fam. CRANGONIDÆ.

Subfam. CRANGONINÆ.

CRANGON MUNITUS.—Rostrum brevissimum, rotundatum. Carapax partim 7-carinatus, carinâ mediâ vel primâ bispinosâ, 2dâ utrinque unispinosâ, brevi, 3tiâ nudâ, 4tâ unispinosâ, brevi. Abdomen læve, inerme. Manus nuda. Pedes 2di 3tiis vix breviores, 4ti 5tique paulo hirsuti, 5tis minoribus. Maxillipedes externi utrinque valde ciliati. Segmentum caudale apice subacutum et quatuor setis instructum. *Hab.* in freto Pugettensi. *Long.* 1" 10‴.

PARACRANGON ECHINATUS.—Rostrum elongatum, porrectum, apice bidentatum, dorso unidentatum, juxta basin infra unispinosum, spinâ longâ porrectâ. Carapax multispinosus, medio dorso inæqui 4-dentatus, utrinque 5—7-spinosus. Abdomen superne partim carinatum superficie paulo scalptum, lateribus acutis. Manus elongata, digito immobili longo et gracillimo. Pedes 4ti 5tique fere nudi, subæqui. *Hab.* in freto Pugettensi. *Long.* 1¾".

Subfam. LYSMATINÆ.

NIKA HAWAIENSIS.—Rostrum brevissimè triangulatum, oculis multo brevius, latius quam longum. Squama antennarum externarum basi internarum parce brevior. Pedes antici subæqui, dexter chelatus nudiusculus. Articulus pedis 2di 4tus 3tio vix longior, non annulatus; carpus 11-articulatus, articulis quatuor 1mis vix disjunctis. Pedes 6 postici subæqui, nudiusculi, gracillimi. *Hab.* prope insulam "Maui" Hawaiensem. *Long.* 8".

Fam. PALÆMONIDÆ.

Subfam. ALPHEINÆ.

Genus ALPHEUS.

I. *Rostrum margine frontis ortum, superficie inter oculos sæpius leviter carinatâ.*

A. Antennarum articulus 1mus externarum spinâ externâ sive nullâ sive obsolescente armatus.

1 *Manus marginibus inferiore superioreque versus digitos excavata. Dens antennarum internarum basalis articulo* 1mo *non longior. Articulus pedum 3tiorum iterum 3tius omnino inermis.*

a. Orbitæ margo inermis.

ALPHEUS STRENUUS.—Rostrum elongatum, acutum, superficie inter oculos leviter carinatâ. Squama antennarum externarum basalis basi non longior. Articulus antennarum internarum 2dus 1mo fere duplo longior. Pedes antici multo inæqui, manus majoris sinu infero-marginali concavo et non triangulato, brachio ad apicem internum acute uni-dentato; manu minore angusto-oblongâ, paulo pubescente, digitis intus dense hirsutis, pilis apicem digiti mobilis omnino celantibus. Pedes 2di 3tiis multo longiores, carpi articulis 1mo 2doque fere æquis, 2do longiore quam 5tus. *Hab.* insulâ Tongatabu. *Long.* 1¾".

ALPHEUS PACIFICUS.—Rostrum breve, acutum, superficie inter oculos breviter carinatâ. Squama antennarum externarum basalis basi planè brevior; articulus antennarum internarum 2dus 1mo duplo longior. Pedes antici multo inæqui; manus majoris sinu infero-marginali profundè triangulato, brachio apicem internum inermi; manu minore angusto-oblongâ, paulo pubescente, digitis intus dense hirsutis, apicibus apertis. Pedes 2di 3tiis parce longiores, carpi articulo 2do multo breviore quam 1mus, vix longiore quam 5tus. *Hab.* insulis Hawaiensibus. *Long.* 1¾".

b. Orbitæ margo spinulâ armatus.

ALPHEUS EUCHIRUS.—Rostrum paulo elongatum, superficie inter oculos carinatâ. Squama antennarum externarum basalis basi non longior. Articulus antennarum internarum 2dus 1mo paulo longior. Pedes antici multo inæqui; manus majoris sinu infero-marginali concavo; brachio apicem non spinigero; manu minore oblongâ, crassiusculâ, lævi, digitus extus et intus leviter laxèque pubescentibus. Pedes 2di 3tiis paulo longiores, carpi articulo 1mo duplo longiore quam 2dus, manu vix breviore quam tres articuli precedentes simul sumti. Pedes 3tii 4tive parce criniti, articulo 3tio apicem internum brevissimè acuto, 2do intus 7—8-setuloso, setulis paulo confertis. *Hab.* in freto "Balabac." *Long.* 9‴.

2. *Manus margine inferiore integer. Dens antennarum internarum basalis articulo primo vix longior.*

a. Orbitæ margo inermis.

ALPHEUS OBESO-MANUS.—Rostrum brevissimum, in carinam paulo postice productum. Squama antennarum externarum basalis basi non brevior, basi internarum multo brevior; dens internarum basalis perbrevis; articulus 2dus 1mo plus duplo longior. Pedes antici valde inæqui, manu *majore* lævi, elongatâ, obesâ, non compressâ, versus apicem angustiore, digito mobili perbrevi, malleiformi, *minore* lineari, digitis brevissimis. Pedes 2di portentosè elongati, 3tiis plus duplo longiores, carpi articulo 1mo quadruplo breviore quam 2dus, 3tio 4to 5toque brevibus, subæquis. Articulis pedis 3tii 3tius apice inferiore acutus. *Hab.* in archipelago "Viti." *Long.* 9‴.

ALPHEUS CRINITUS.—Rostrum acutum, superficie inter oculos carinatâ. Squama antennarum externarum basalis basi harum parce brevior, basi internarum paulo brevior; dens internarum basalis perbrevis. Articulus antennarum internarum 2dus 1mo duplo longior. Pedes antici multo inæqui; manu *majore* obesâ, parce compressâ, infra rotundatâ, omnino lævi, partim leviter pubescente, digitis perbrevibus, (manu quadruplo brevioribus), digito mobili arcuato; *minore* oblongâ, leviter crinitâ, digitis parte manus ante digitos paulo brevioribus. Pedes 2di valde elongati, 3tiis sesquilongiores, articulo carpi 2do parce longiore quam 1mus, 3tio 4to 5tove oblongo, uno alterum fere æquante. Pedes 3tii 4tive leviter criniti, articulo 3tio apicem inferiorem dentigero. *Hab.* in freto "Balabac." *Long.* 10'''.

ALPHEUS MITIS.—Rostrum acutum, superficie inter oculos carinatâ. Squama antennarum externarum basalis basi harum internarumve parce longior. Articulus antennarum internarum 2dus 1mo paulo longior, densque basalis articulo 1mo fere longior. Pedes antici inæqui; manu majore lævi, paulo compressâ, marginibus rotundatâ, digitis regularibus, manu fere triplo brevioribus; minore simili, angustiore. Pedes 2di 3tiis multo longiores, articulo carpi 2do 1mum longitudine æquante, 3tio 4tove oblongo, parce breviore quam 5tus, manu perbrevi. Pedes 3tii 4tique fere nudi, articulo 3tio apicem internum non acuto. *Hab.* in freto "Balabac." *Long.* 9'''. An femina A. Lottinii?

b. Orbitæ margo spinulâ denteve armatus.

ALPHEUS ACUTO-FEMORATUS.—Rostrum acutum postice inter oculos productum. Squama antennarum externarum basalis basibus antennarum non longior. Dens basalis antennarum internarum brevis, articulus 2dus 1mo parce longior. Orbitæ margo acutus sed spinâ non productus. Pedes 2di 3tiis sat longiores, carpi articulo 1mo brevi, 2do plus duplo longiore quam 1mus. Pedes 3tii, 4tique crassiusculi, articulo 2do 3tioque apicem inferiorem instar spinæ elongate acuto. [Pedibus anticis specimen nobis mutilatum.] *Hab.* in freto "Balabac." *Long.* 9'''.

B. Articulus antennarum externarum 1mus spinâ externâ armatus.

a. Orbitæ margo inermis.

ALPHEUS PARVI-ROSTRIS—Corpus nudum. Rostrum acutum, breve, superficie inter oculos carinatâ. Squama antennarum externarum basalis basi utroque paulo longior; spina basalis mediocris; dens internarum basalis brevis; articulus 2dus 1mo vix longior. Pedes antici valde inæqui, manu majore crassissimâ, marginibus ambobus indentatâ, superficie externâ partim sulcatâ, digitis perbrevibus, digito mobili extus arcuato; manu minore regulari, pubescente. Pedes 2di 3tiis paulo longiores, articulo carpi 1mo fere duplo longiore quam 2dus, manu brevi. Pedes 3tii 4tique crassiusculi, articulo 3tio apicem inferiorem unidentato. *Hab.* in freto "Balabac." *Long.* 8'''.

b. Orbitæ margo spinulâ denteve armatus vix breviore quam rostrum.

ALPHEUS TRIDENTULATUS.—Rostrum perbreve, dentiforme. Squama antennarum externarum basalis basi brevior, basi internarum vix brevior, spina externarum basalis mediocris, spina internarum longissima, articulo 1mo multo longior; articulus 2dus 1mo non longior. Pedes antici valde inæqui, manu majore lævi, paulo compressâ, marginibus latè rotundata, digitis perbrevibus, manu triplo brevioribus. Pedes 2di 3tiis paulo longiores, articulo carpi 1mo quadruplo longiore quam 2dus, 2do perbrevi, vix longiore quam 3tius. Articulus pedum 3tiorum 4torumve 3tius apice interno inermis. *Hab.* in portu "Rio Janeiro"? *Long.* 10'''.

ALPHEUS NEPTUNUS.—Frons elongate trispinosus, rostro spinisque orbitalibus prælongis, æquis. Squama antennarum externarum basalis basi brevior et spina externa elongata; spina internarum basalis longa, articulo 2do breviore quam 1mus. Pedes antici multo inæqui, manu majore lævi, paulo compressâ, marginibus rotundatâ, digitis brevibus, manu triplo brevioribus, digito mobili supra arcuato; manu minore angustâ. Pedes 2di 3tiis longiores, articulo carpi 1mo quadruplo longiore quam 2dus, 2do 3tio 4toque inter se fere æquis, non oblongis. Articulus pedum sequentium 3tius apice inferiore inermis. *Hab.* in mari Suluensi. *Long.* 8—9'''.

II. *Rostrum inter oculorum bases ortum, sulco profundo in carapace utrinque juxta rostrum excavato.*

a. Orbitæ margo intermis.

Alpheus pugnax.—Rostrum acutum, anguste triangulatum planum, inter oculorum bases ortum. Spina antennarum externarum basalis parva; squama basi paulo longior. Spina antennarum externarum basalis articulo 1mo non brevior, articulus 2dus brevis, 3tius squamam externarum non superans. Pedes antici inæqui; majore elongatâ, lævi, marginibus rotundatâ, supra angustè emarginatâ, digitis brevibus (manu triplo brevioribus), brachio apicibus instar spinæ acuto. Pedes 2di longi, articulo carpi 1mo dimidio breviore quam 2dus. Pedes 3tii 4tique graciles, articulo 3tio apicem inferiorem uni-dentato. *Hab.* ad insulam "Maui" Hawaiensem. *Long.* 12'''.

Alpheus diadema.—Rostrum latum, apice triangulatum et acutum, inter oculorum bases ortum, lateribus concavis. Spina basalis antennarum omnium brevis; squama externarum basi utroque longior. Pedes 2di 3tiis parce longiores, articulo carpi 1mo paulo longiore quam 2dus vel 5tus, 3tio 4tove parce oblongo. Pedes 3tii 4tive 5tis valde crassiores, articulo 3tio apicem inferiorem unidentato. *Hab.* ad insulam "Maui" Hawaiensem. *Long.* 10'''.

b. Orbitæ margo spinulâ denteve armatus.

Alpheus lævis.—(Randall, Jour. Acad. Nat. Sci. Philad. viii.)

Alpheus malleator.—Rostrum perbreve, triangulatum, inter oculorum bases ortum. Spina orbitalis brevis. Squama antennarum externarum basalis basi brevior; spina basalis externarum mediocris, internarum brevissima; articulus 2dus internarum 1mo sesqui longior. Pedes antici inæqui; manus majoris superficie supernâ et internâ partim minutè tuberculatâ, margine superiore sulcato, juxta articulationem digiti 2—3-inciso, digitis perbrevibus, mobili malleiformi, obtuso. Pedes 2di 3tiis parce longiores, articulo carpi 1mo duplo longiore quam 2dus. Pedes 3tii crassiusculi, articulo 3tio apicem inferiorem obtuso. *Hab.* in portu Rio Janeiro? *Long.* 2½''.

Genus **Betæus.**

Betæus truncatus.—Frons truncatus, medio non emarginatus. Squama antennarum externarum basi non longior; spina externa brevis; spina internarum basalis prælonga, articuli basales elongati, subæqui. Pedes antici multo inæqui, manu majore longâ, sublineari, valde compressâ, fere lævi, scabriculâ, digitis longis, fere dimidi manus longitudine, mobili terete. Pedes 2di 3tiis sat longiores, carpo sat brevi, articulo carpi 1mo plus duplo longiore quam 2dus, 2do 3tio 4toque brevibus. Articulus pedum sequentium 3tius omnino inermis. *Hab.* Fuegiâ in mari prope insulam "Hermite," pedibus sexaginta altitudine. *Long.* 15'''.

Betæus æquimanus.—Frons medio profundè incisus. Squama antennarum externarum basalis basi paulo brevior; spina externa perbrevis; spina internarum basalis prælonga, articulo 2do multo breviore quam primus. Pedes antici æqui, manu lævi, compressâ, digitis perbrevibus. Pedes 2di 3tiis sat longiores, articulo carpi 1mo plus duplo longiore quam 2dus, 2do 3tio 4toque perbrevibus. Articulus pedum sequentium 3tius omnino inermis. *Hab.* in portu "Bay of Islands," ad insulas "Black Rocks," Novi-Zealandiæ.

Betæus scabro-digitus.—Frons leviter arcuatus, medio obsolete excavatus. Squama antennarum externarum basalis mediocris, basi parce brevior, basin internarum fere æquans; flagellum latè compressum; spina externa brevis; spina internarum basalis longa. Pedes antici *feminæ* valde inæqui, manu majore mediocri, leviusculâ, compressâ, margine inferiore rotundatâ, digitis scabriculis, dimidio manus paulo brevioribus, vix dentigeris; *maris* æqui, crassiores, digitis brevibus, valde incurvatis, immobili crassè unidentato. Pedes 2di 3tiis paulo longiores, articulo carpi 1mo plus duplo longiore quam 2dus, 2do 3tio 4toque brevibus. Articulus pedum sequentium 3tius extus prope basin spinâ armatus. *Hab.* juxta urbem "Valparaiso" Chilensem. *Long.* 1½''.

Genus HIPPOLYTE.

I. *Rostrum in dorsum non productum.*

HIPPOLYTE ACUMINATUS.—Rostrum elongatè acuminatum, subensiforme, apice parce recurvatum, squamâ antennali non brevius, medio margine supra infraque unidentatum. Carapax supra oculum unispinosus. Antennarum flagellum brevius internarum 5—6-articulatum, apicem rostri non superans. Pedes antici perbreves, manu ovatâ. Pedes 2di 3tiis breviores, carpo 3-articulato. Maxillipedes externi basin antennarum externarum superantes, pubescentes. Tarsi pedum 6 posticorum infra spinulosi. *Hab.* in mari Atlantico cum *Sargasso* lat. bor. 36° 07′—4° 07′, long. occid. 20° 43′—71° 36′. A *tenuirostrato Edw.* differt, dorso in regione gastrico spinâ non armato, margine rostri inferiore unidentato tantum.

HIPPOLYTE EXILIROSTRATUS.—Rostrum longum, omnino angustissimum, versus apicem non latior, rectum, apice acutum, supra 4-spinosum, infra rectum, integrum. Antennarum flagellum brevius internarum apicem rostri multum superans, multiarculatum. Maxillipedes externi elongati, apicem basis antennarum externarum multum superantes. Pedes antici perbreves, manu subovatâ, fere per ejus latus carpo articulatâ. Pedes 2di 3tiis breviores, carpo 3-articulato; 6 sequentes nudiusculi, tarsis infra spinulosis, spinulis apicis longis reliquis brevissimis. *Hab.* in portu "Rio Janeiro." *Long.* 6—8‴.

HIPPOLYTE OBLIQUIMANUS.—Rostrum longum, tenuiter laminatum, rectum, versus apicem verticaliter latior, infra non rectum 2-dentatum, supra 4-dentatum, apice bifidum. Flagellum antennarum internarum minus apicem rostri superans, majus paulo longius. Pedes antici perbreves, manu subovatâ carpo manu multo breviore, vix oblongo. Pedes 2di 3tiis breviores, carpo 3-articulato. Tarsi pedum 6 sequentium infra spinulosi, spinulis apicis longis, deinde sensim brevioribus. *Hab.* in portu Rio Janeiro. *Long.* 8‴.

2. *Rostrum in dorsum productum.*

HIPPOLYTE BREVIROSTRIS.—Rostrum breve (basi antennarum internarum multo brevius) acutum, spiniforme, dorso breviter productum, supra 4-spinosum, spinis inter se æque remotis. Maxillipedes externi longi, squamam antennalem longe superantes. Pedes antici crassiusculi, manu oblongâ. Pedes 2di 3tiis longiore, carpo elongato, 7-articulato. *Hab.* in freto "de Fuca," juxta portum "Dungeness." *Long.* 1½″.

HIPPOLYTE LAMELLICORNIS.—Rostrum longum verticaliter latissimum, fere ad thoracis basin productum, apice bifidum, supra sinuosum, super cephalothoracem 4-spinosum, anterius 6-spini-dentatum, spinulis inæquis, totis inter se subæque remotis, infra triangulatum, 2-dentatum. Antennæ internæ rostro parce longiores. Pedes antici gracillimi, 2dis paulo crassiores. Pedes 2di 3tiis vix breviores, carpo elongato, 7-articulato, articulo carpi 3tio longo. Tarsi pedum sequentium fere inermes, spinulis versus basin subtilissimis. Maxillipedes externi apice spinulosi, articulo ultimo supra pubescente. *Hab.* in freto "de Fuca" Oregoniæ, juxta portum "Dungeness." *Long.* 1½—2″.

Subfam. PANDALINÆ.

PANDALUS PUBESCENTULUS.—Carapax dense brevissimeque pubescens, margine infra oculum bispinoso. Rostrum squamâ antennali longius, ensiforme, paulo recurvatum sed apice non altius quam dorsum, supra 16—18-dentatum, dentibus parvulis et fere ad dorsi medium continuatis, versus apicem edentulum, infra 7-dentatum, apice bifidum. Pedes toti nudiusculi, 3tii 4ti 5ti longitudine sensim decrescentes, 3tii longi, 1mi articulis 2dorum tribus primis longiores. *Hab.* in freto "de Fuca" Oregoniæ, juxta portum "Dungeness." *Long.* 5″.

Subfam. PALÆMONINÆ.

PONTONIA TRIDACNÆ.—Corpus depressum. Carapax nudus, lævis, paulo oblongus, rostro triangulato, obtuso. Antennæ internæ perbreves, flagellis subequis, articulis duobus precedentibus non oblongis. Squama antennarum externarum basalis apicem rostri non superans; flagellum rostro paulo longius. Pedes antici longiores, tenues, digito dimidio breviore quam manus; 2di crassiusculi, breves, subæqui, manu oblongâ, digitis manu plus dimidio brevioribus, brachio ultra carapacem parce saliente. Pedes 6 postici breves, æqui, nudi. *Hab.* in conchâ Tridacnæ maris juxta insulam "Tutuila" Samoensen (vel "Navigator's.") *Long.* fere 8‴; vel abdomine inflexo, 4‴.

Œdipus superbus.—Corpus paulo depressum. Rostrum horizontaliter latum, oblongo-triangulatum, rectum, supernè medio costatum et 5-serratum, infra prope apicem 2-serratum, squamâ basali antennarum externarum plus duplo brevius, basi internarum paulo brevius. Pedes antici tenues, manu breviter villosâ, proximi æqui, crassissimi, manu magnitudine portentosâ, plus dimidio longiore quam carapax, tumidâ, versus basin crassiore, digito mobili plus quadruplo breviore quam manus, angusto, tenuiore quam immobilis et margine externo angulate sinuoso. Oculi magni. *Hab.* insulâ "Tongatabu." *Long.* 10‴.

Œdipus gramineus.—Corpus paulo depressum. Rostrum angustum, rectum, squamâ basali antennarum externarum fere dimidio brevius, basin internarum longitudine æquans, supra 4-dentatum, infra propre apicem 1-dentatum. Oculi magni. Pedes antici elongati, antennis internis non breviores. Pedes 2di æqui, crassissimi, manu magnitudine portentosâ, plus dimidio longiore quam carapax, inflatâ, versus basin crassiore, digito plus quadruplo breviore quam manus, sublunato, extus integro, arcuato. *Hab.* archipelago "Viti." *Long.* 8‴.

Harpilius lutescens.—Corpus paulo depressum. Rostrum angustum, parce recurvatum, squamâ antennali paulo brevius, basi internarum multo longius, supra 7—8-dentatum, infra propre medium 1-dentatum. Pedes antici manu sparsim pubescentes; 2di angusti, manu gracili, fere lineari, digitis linearibus vix dimidii manus longitudine. *Hab.* insulâ "Tongatabu." *Long.* 7‴.

Anchistia gracilis.—Rostrum tenue, rectum, acutum, longum, squamâ antennali fere brevius, basi antennarum internarum longius, supra 6-dentatum, dente postico inter oculos, infra unidentatum. Antennarum internarum articuli 2dus 3tiusque perbreves. Pedes 2di longi, carpo perbrevi, apice acuto, brachio apice externo acuto, manu subcylindricâ, digitis manu fere triplo brevioribus. *Hab.* in mari Suluensi. *Long.* 8—9‴.

Anchistia longimana.—Rostrum elongatum, acutum, basi angustum, tenue, supra 6-dentatum, dente postico oculis posteriore. Antennæ internæ elongatæ, articulis basalibus 2do 3tioque longissimis, apice 2di extremitatem rostri fere attingente, 3tio dimidii rostri longitudine. Pedes 2di prælongi, æqui, brachio apicem rostri multo superante, carpo elongatè obconico, apice interno spinigero, manu longâ angustâ, digitis dimidio manus multo brevioribus. *Long.* 6—8‴.

Anchistia ensifrons.—Rostrum ensiforme, valde recurvatum, squamâ antennali non longius, apice bifidum, supra 6—7-dentatum, infra paulo dilatatum et 3-dentatum. Carapax super orbitam spinâ armatus, infra orbitam spinis duabus in eâdem lineâ horizontali. Antennæ internæ rostrum parce superantes. Pedes antici graciles, apicem carpi 2di non attingentes; 2di crassiusculi, subcylindrici, per carpum manumque rostrum superantes, carpo longo, apice inermi, obtuso manu prælongâ, lineari, digitis dimidio manus paulo brevioribus. Pedes 6-sequentes gracillimi, longi, fere nudi. *Hab.* in freto "Balabac." *Long.* 8—9‴.

Anchistia aurantiaca.—Corpus vix depressum. Rostrum angustum, integrum, basis antennarum internarum longitudine, squamâ externarum paulo brevius. Pedes antici superficie manus internâ prope basin densè laxèque pubescentes. Pedes 2di graciles, manu parce crassiore quam carpus, fere lineari, digitis dimidio manus multo brevioribus, parce pubescentibus, angustis. *Hab.* archipelago "Viti." *Long.* 6‴.

Palæmonella tenuipes.—Rostrum rectum, non reflexum, squamâ antennali non longius, supra 6—7-dentatum, dentibus inter se fere æquè remotis, infra 2-dentatum, et non dilatatum, apice acutum. Pedes 2di valde elongati, apice brachii apicem rostri vix superante et infra supraque acuto, carpo dimidii manus longitudine, apice spinâ armato, digitis dimidio manus brevioribus. Pedes 6 postici gracillimi fere nudi. *Hab.* in mari Suluensi. *Long.* 8‴.

PALÆMONELLA ORIENTALIS.—Rostrum rectum, non recurvatum, squamâ antennali non longius, apice acutum, supra 6-dentatum, dentibus inter se fere æque distantibus, infra 1-dentatum. Pedes 2di crassiusculi, subcylindrici, apice brachii apicem rostri non attingente et non acuto, carpo breviore quam dimidium manus, apice non acuto, digitis dimidio manus brevioribus. Pedes 6 postici fere nudi, graciles. *Hab.* in mari Suluensi. *Long.* 8''', (feminæ ovigeræ.)

Genus PALÆMON.

1. *Carapax margine antico infra oculum spinis duabus armatus.*

PALÆMON DEBILIS.—Rostrum prælongum, gracile, paulo recurvatum, squamâ antennali multo longius, apice bifidum, dimidio apicali supra integro, basali 4—6-dentato, margine inferiore 6—9-dentato. Antennarum internarum flagella duo longè conjuncta. Pedes nudi, inermes; 1mi 2dique inter se subæquales, parvuli, gracillimi, manu dimidio carpi paulo longiore, non incrassatâ. Flagellum antennarum internarum minus perbreve. *Var.* α, Rostrum supra 4-dentatum, infra 6-dentatum; *var.* β, *attenuatus*—Rostrum longissimum, supra 6-dentatum et infra 9-dentatum. *Hab.* insulis Hawaiensibus. *Long.* 12—15'''.

PALÆMON EXILIMANUS.—Rostrum lanceolatum, apice brevi deflexum, supra paulo arcuatum et 6-serratum, infra 3-serratum, squamam antennalem non superans. Flagella duo antennarum internarum parce conjuncta. Pedes antici gracillimi, manu plus duplo breviore quam carpus; 2di non crassiores, nudi, manu duplo longiore, carpo dimidio longiore quam manus, digitis dimidio manus paulo brevioribus. Pedes duo postici tenuissimi, prorsum porrecti apicem rostri superantes. *Hab.* archipelago "Viti." *Long.* 1½''.

PALÆMON CONCINNUS.—Rostrum gracillimum, squamâ antennali vix longius, basi antennarum internarum multo longius, ensiforme, fere rectum, apice bifidum vel trifidum dorsoque non altius, infra remotè minutèque 5-serratum, supra 5—6-serratum, dente 1mo vel externo a extremitate rostri remoto, penultimo inter oculos. Maxillipedes externi apicem basis antennarum externarum paulo superantes, hirsuti. Pedes 1mi apicem squamæ antennalis fere attingentes. Pedes duo postici prælongi, tenuissimi, articulo 4to apicem maxillipedis externi fere attingente. *Hab.* archipelago "Viti." *Long.* 1¾'''.

2. *Carapax margine antico infra oculum spinâ unâ armatus, poneque hanc alterâ minore.*

PALÆMON GRANDIMANUS.—*Randall*, Jour. Acad. Nat. Sci. viii. 142.

PALÆMON LANCEIFRONS.—Rostrum late elevatum, lanceolatum, supra arcuatem et 12-serratum, apice vix recurvatum, infra 3-serratum, squamam antennalem longitudine non superans. Pedes antici gracillimi, carpo plus duplo longiore quam manus. Pedes 2di longissimi (corpore longiores), fere cylindrici, manu graciliore et non breviore quam carpus, scabriculâ, digitis brevibus, superiore hirsuto. Pedes postici si prorsum porrecti apicem rostri superantes. *Hab.* insulâ "Luzon," archipelagi Phillipinsis, prope portum "Manila." *Long.* 2''.

PALÆMON ACUTIROSTRIS.—Rostrum lanceolatum, apice non recurvatum, squamâ antennali non longius, supra 14—16-dentatum, dentibus confertis, et usque ad apicem continuatis, infra 4—5-dentatum. Maxillipedes externi mediocres. Pedes antici gracillimi, manu dimidii carpi longitudine. Pedes 2di longi, tenues, omnino bene scabri, manu parce crassiore et duplo longiore quam carpus, digitis dimidio manus brevioribus, apice carpi rostrum paulo superante. Pedes sequentes inermes. *Hab.* insulis Hawaiensibus. *Long.* 2½—3''.

PALÆMON EQUIDENS.—Rostrum rectè ensiforme, verticaliter sat latum, apice parce reflexum, squamâ antennali non brevius, supra rectiusculum et 10—11-dentatum, dentibus inter se fere æque remotis, et supra tertiam partem dorsi carapacis continuatis, duobus terminalibus minoribus et fere apicalibus; infra arcuatum et 6-dentatum. Pedes 1mi rostrum multo superantes. Pedes 2di longi, subcylindrici, subtilissimè spinulosi, brachii apice apicem rostri attingente. *Hab.* in mari prope portum "Singapore." *Long.* 4½''.

CRYPHIOPS SPINULOSO-MANUS.—Rostrum triangulatum, squamâ antennali brevius, basin antennarum internarum superans, supra æque 7-dentatum, infra prope apicem unidentatum. Pedes 2di 1mos vix superantes, minute spinulosi, manu plus duplo longiore quam carpus, digitis dimidio manus longioribus, apice minutè cochleari-excavatis. Pedes antici nudiusculi, manu infra hirsutâ. Pedes 6 postici quoque nudiusculi, articulo 5to infra parce armato, tarsis unguiculatis. *Hab.* in fluminibus Chilensibus mari remotis. *Long.* 3½".

Subfam. Oplophorinæ.

Regulus lucidus.—Rostrum prælongum recurvatum, longè acuminatum, versus basin horizontaliter sensim latius deinde lateribus subparallelum, supra 8—9-dentatum, infra 3-dentatum. Squama antennalis perangusta, rostro paulo brevior, dentibus tribus externis parvulis. Pedes 2di crassi, manu oblongâ digitis dimidio manus brevior, parce hiantibus. Pedes 6 postici sparsim laxèque pubescentes. *Hab.* in mari Pacifico, prope insulas "Ladrone." *Long.* 9'".

Regulus crinitus.—Rostrum longiusculum, non recurvatum, supra 9—10-dentatum, infra prope apicem 2-dentatum, versus basin super oculos subito valde latior deinde posterius parce angustans. Squama antennalis rostro non brevior, paulo lata, dentibus tribus externis prominentibus. Pedes 2di crassè chelati, manu oblongâ, digitis brevibus, hiantibus. Pedes 6 postici laxe criniti, articulo 3tio parium 3tii 4tique infra 3—4-serrato. *Hab.* in mari Suluensi. *Long.* 10'".

Legio III. PENÆINEA.

Fam. Penæidæ.

Penæus carinatus.—Rostrum squamâ antennali parce longius, paulo sinuosum, extremitate styliforme, parce recurvatum, apice vix altius quam dorsum, supra 7—8-dentatum, infra 3-dentatum. Flagella antennarum internarum articulis duobus precedentibus non longiora. Pedes 5ti 4tis non graciliores.—Hab. in mari prope portum "Singapore.—Long. 7". P. *setifero* affinis, sed rostrum infra 3-dentatum.

Penæus avirostris.—Rostrum rectum, extremitate anguste styliforme, et edentatum, non recurvatum, basi supra prominenter dilatatum et 6-dentatum, infra rectissimum, integrum, longitudine squamam antennalem non superans. Carapax dorso postico non carinatus nec sulcatus. Flagella antennarum internarum articulis duobus precedentibus non longiora. Oculi breves. Pedes 5ti 4tis multo graciliores. *Hab.* in mari prope urbem "Singapore." Long. 5".

Penæus velutinus.—Carapax abdomenque omnino breviter velutini. Rostrum rectum, bene lanceolatum, e basi ascendens, usque ad apicem supra denticulatum, dentibus septem æque dispositis, altero paulo posteriore, infra integrum, ciliatum, rectum. Dorsum carapacis posticum non carinatum nec sulcatum. Pedes 2di 3tiusque subæqui. Maxillipedes externi longi, pubescentes. Segmentum caudale utrinque minutè armatum. Flagella antennarum internarum brevissima, articulum ultimum parce superantia. *Hab.* insulâ "Maui Hawaiensi."—Long. 1½".

Penæus tenuis.—Rostrum supra multidentatum (dentibus novem vel pluribus,) parce sinuosum. Carapax dorso postice non carinatus nec sulcatus. Oculi sat longi. Flagella antennarum internarum subæqua, carapace vix breviora. *Hab.* in mari Atlantico prope portum "Rio Negro" Patagoniæ. Long. 1½".

Penæus gracilis. Gracillimus. Rostrum rectum, sat breve, oculis vix longius, supra 5-dentatus. Antennarum internarum basis tenuis, longissimus, carapacem longitudine æquans. Manus pedum sex anticorum carpo vix longior, apice parce pubescens; digiti dimidii manus longitudine. Segmentum caudale margine tri-spinulosum; lamella externa non articulata. *Hab.* in mari Suluensi. Long. 8—9'".

Stenopus ensiferus. Carapax plerumque lævis, 2—3 sulcis obliquis intersecatus, uno validiore e dorsi medio fere ad angulum antero-lateralem producto et margine spinuloso, superficie carapacis antero-laterali spinulis armatâ; rostro ensiformi, paulo longiore quam basis antennarum internarum, fere recto, apicem

vix recurvato, supra 10-dentato, infra 3-dentato. Abdomen inerme. *Hab.* archipelago "Viti." Long. 6‴.

FAMILY EUCOPIDÆ.

EUCOPIA AUSTRALIS. Carapax fronte truncato-rotundatus, margine postice profunde excavatus. Segmentum abdominis penultimum ultimo longius, ultimum subulatum, lamellis caudalibus vix longius. Antennæ internæ externis paulo breviores, dimidii corporis longitudine, flagello uno brevi; externarum squama basalis basi internarum multo longior. Maxillipedes 2di et 3tii et pedes 1mi formâ consimiles, sensim increscentes, articulo penultimo angustè oblongo, digito plus dimidio breviore quam articulus precedens. Pedes reliqui gracillimi, criniti, palpo longo, natatorio. *Hab.* in mari antarctico, lat. aust. 66° 12′ long. occ. 149° 24′; e stomacho Penguini lecta. *Long.* 1″.

The Third Resolution of the Committee appointed to inquire into the expediency of enlarging the Hall of the Academy, the consideration of which had been deferred until the present meeting, was then taken up, and adopted as follows:

Resolved,—That all subscribers of One Hundred dollars and upwards, who are not members of the Academy, shall have, during their lives, the right to visit the Collections of the Academy, and to give orders of admission to the Museum on public days.

The Report of the Publication Committee for 1851, was read and adopted.

The Corresponding Secretary read his Report for the last two months, which was adopted.

The Recording Secretary read his Annual Report for 1851, which was ordered to be published.

REPORT

OF THE RECORDING SECRETARY

For 1851.

During the past year twelve Members and eight Correspondents have been elected.

Five members have died, to wit: Dr. Samuel George Morton, late President of the Academy; Mr. William Hembel, formerly President of the Academy; Dr. John K. Townsend, Dr. Mark M. Reeve, and Mr. Richard C. Taylor.

The present number of Members of the Society is 187. The whole number of Correspondents elected up to the present time is 551.

Besides minor and verbal communications, the following written communications have been presented for publication in the Proceedings and Journal of the Academy.

By Louis Berlandier, M. D. Descriptions of two new species of Mexican Wolves.

By Mr. John Cassin, seven; to wit: 1. Sketch of the Birds composing the genera Vireo, Viell., and Vireosylvia, Bonap., with a list of those previously known, and descriptions of three new species. 2. Descriptions of new species of Birds of the genera Galbula and Bucco, Briss., specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia. 3. Notes of an examination of the Birds composing the family Caprimulgidæ, in the collection of the Academy of Natural Sciences of Philadelphia. 4. Descriptions of new species of Birds of the family Laniadæ, specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia. 5. Note on the Cicada

Cassinii, Fisher, and on the C. Septendecim, Linn. 6. Catalogue of the Caprimulgidæ in the collection of the Academy of Natural Sciences of Philadelphia. 7. Descriptions of Birds of the genera Laniarius, Dicrurus, Graucalus, Pipra and Picus, specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia.

By Mr. James D. Dana.—Conspectus Crustaceorum quæ in Orbis Terrarum Circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fœderatæ duce, lexit et descripsit J. D. Dana. 2 papers.

By Dr. James C. Fisher.—On a new species of Cicada.

By Mr. Charles Girard.—Historical Sketch of the Gordiaceæ.

By Mr. Isaac Lea, two; to wit: On the genus Acostæa of D'Orbigny (published in the Journal.) Memoir of the late Richard C. Taylor.

By Dr. J. L. Le Conte, five; to wit: An attempt to classify the Longicorn Coleoptera of the part of America North of Mexico, 2 papers, published in the Journal. 3. Synopsis of the species of Donacia. 4. Synopsis of the Lampyridæ of Temperate North America. 5. Zoological Notes.

By Dr. Joseph Leidy, eight; to wit: 1. Descriptions of new species of Entozoa. Contributions to Helminthology, 4 papers. 6. Corrections and additions to former papers on Helminthology published in the proceedings of the Academy of Natural Sciences of Philadelphia. 7. On some American fresh-water Polyzoa. 8. Description of a new species of fossil Crocodile, (published in the Journal.)

By Col. George A. McCall, U. S. A.—Some account of Birds found in Western Texas and New Mexico, with descriptions of new species.

By Dr. David Dale Owen.—Description of a new Mineral and New Earth. (Published in the Journal.)

By Dr. David Dale Owen and Dr. Benjamin F. Shumard.—Descriptions of seventeen new species of Crinoidea, from the sub-carboniferous limestone of Iowa and Illinois. (Published in the Journal.)

By Mr. Richard C. Taylor.—Substance of Notes made during a Geological Reconnoisance in the Auriferous Porphyry region next the Carribean Sea, in the Province of Veraguas and Isthmus of Panama. (Published in the Journal.)

By Dr. S. W. Woodhouse.—Description of the North American Jackal, *Canis frustror*.

In all thirty-two papers.

Besides the above, Dr. Charles D. Meigs read, by appointment, before the Academy, at the Hall of the University of Pennsylvania, on November 6th, a most able, eloquent and truthful memoir of its late President, Dr. Samuel George Morton, which was subsequently published by direction of the Society.

During the past year the prosperity and activity of the Academy have been sustained in the most gratifying manner. Its meetings have been fully attended; the number of valuable communications large, and the zeal of its members in the pursuit of its objects unabated. Its appreciation by the public is made constantly more manifest, in the numerous visitors to its collections, and in the interest shown by the community in its results.

We have had, however, to regret, during this period, the loss by death of several of our most active and distinguished members. After what has been written by so much abler pens, however, it would be presumptuous to attempt to add, in this place, anything in testimony of their merits and attainments, or in expression of the esteem in which they were held among us.

All of which is respectfully submitted by

B. Howard Rand,
Recording Secretary.

Philadelphia, January 27th, 1852.

Dr. Bridges from the Publication Committee, announced the publication of Part 2, vol. 2, new series of the Journal.

The following Resolution offered by Dr. Fisher, was adopted.

Resolved,—That the income of the Stott legacy be applied to the payment of the expense of publication of papers ordered by the Academy for the Journal.

The Auditors reported that they had examined the Report of the Treasurer for 1851, and had found it correct.

The Academy then proceeded to an election for Standing Committees for 1852. The Tellers announced the following result:—

Ethnology, John S. Phillips, James C. Fisher, Robert Pearsall; *Comparative Anatomy and General Zoology*, Joseph Leidy, Edward Hallowell, John Neill; *Mammalogy*, James C. Fisher, E. J. Lewis, S. W. Woodhouse; *Ornithology*, John Cassin, Edward Harris, T. B. Wilson; *Herpetology and Ichthyology*, E. Hallowell, John Cassin, William Keller; *Conchology*, Isaac Lea, T. B. Wilson, W. S. W. Ruschenberger; *Entomology and Crustacea*, S. S. Haldeman. Robert Bridges, Wm. S. Zantzinger; *Botany*, R. Bridges, Wm. S. Zantzinger, Gavin Watson; *Palæontology*, T. A Conrad, Joseph Leidy, B. Howard Rand; *Geology*, J. Price Wetherill, Theodore F. Moss, Aubrey H. Smith; *Mineralogy*, Wm. S. Vaux, Samuel Ashmead, Charles M. Wetherill; *Physics*, Benj. H. Coates, James C. Fisher, Wm. Parker Foulke; *Library*, Thomas B. Wilson, Robert Bridges, Robert E. Peterson; *Proceedings*, Wm. S. Zantzinger, Joseph Leidy, W. S. W. Ruschenberger.

ELECTION.

Samuel Webber, M. D., of Charlestown, N. Hampshire, was elected a *Correspondent*, and Caspar W. Sharpless, of Philadelphia, was elected a *Member* of the Academy.

February 3d.

Vice-President BRIDGES in the Chair.

The following communication was read from Henry A. Ford, M. D., dated Glasstown, Gaboon River, West Africa, Nov. 10th, 1851, on the characteristics of the Troglodytes Gorilla, accompanying the very fine skeleton of that animal presented by him to the Academy, and announced this evening.

"The skeleton that I have the honor of presenting to your Society, is that of the newly discovered species of Orang, which was first described by Drs. Savage and Wyman, (in the Boston Journal of Natural History, 1847) and by them called Troglodytes Gorilla, and by the natives on this coast, "Ngena."

The earliest distinct notice of this species of Orang was made, I believe, by Bowditch in 1817, on his return from his Ashantee Mission in a vessel that visited this river on its passage to England from Cape Coast Castle. His description, though in many respects incorrect, doubtless refers to this species, as the name and locality sufficiently identify the animal he describes with the specimen I have obtained.*

I would also remark here, that all subsequent information, as well as all the specimens in the hands of Europeans, have been obtained in this river.

This animal inhabits the range of mountains that traverse the interior of

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* See Mission to Ashantee by T. Edward Bowditch, Esq., 4to, London, 1819. Chapter on Gaboon River.

Guinea, from the Cameroons on the north to Angola on the south, and about 100 miles inland, and called by Geographers, Crystal Mountains. The limit to which this animal extends either north or south, I am unable to define. But that limit is doubtless some distance north of this river. I was able to certify myself of this fact in a late excursion to the head waters of the Mooney (Darger) river, which comes into the sea some 60 miles from this place. I was informed (credibly I think) that they were numerous among the mountains in which that river rises, and far north of that. In the south this species extends to the Congo river, as I am told by native traders who have visited the coast between the Gaboon and that river. Beyond that I am not informed. This animal is only found at a distance from the coast in most cases, and according to my best information, approaches it nowhere so nearly as on the south side of this river, where they have been found within ten miles of the sea. This, however, is only of late occurrence. I am informed by some of the oldest Nysorgine men that formerly he was only found on the sources of the river, but that at present he may be found within half a day's walk of its mouth.

Formerly, he inhabited the mountainous ridge where Bushmen alone inhabited, but now he boldly approaches the Nysorgine plantations. This is doubtless the reason of the scarcity of information in years past, as the opportunities for receiving a knowledge of this animal have not been wanting:—traders having for 100 years frequented this river, and specimens, such as have been brought here within a year, could not have been exhibited without having attracted the attention of the most stupid.

I shall not attempt in this sketch to give the osteology of the Ngena—as the skeleton itself will demonstrate that. I will, however, make some remarks upon his appearance and habits, color and hair.

At adult age the Ngena is of a dark or iron gray color—the hair being black at its extremities, but white next the skin, which produces the grizzly appearance I have described. In a young one that I have seen, it was black down to the skin like that of the Troglodytes Niger. I am informed by one of the head men of this tribe, that they sometimes are found white. He had seen one of this description to the N. E. of this at the foot of the mountains. This may have been the effect of old age, as the animal is reported to have been full sized. It is a general opinion that it becomes lighter by age.

The hair differs from that of the Troglodytes Niger, in its greater thickness and length. On the neck, back and limbs, it is not less than six inches. It also presents a more shaggy appearance from its slight curl at the extremities. The length of hair, together with the thickness of skin and the great development of muscle hereafter to be described, give the Ngena a hugeness that can hardly be conceived from a simple examination of the skeleton.

Bowditch's assertion that he was apparently four feet in diameter through the shoulders is as correct as most other statements in his book. The specimen sent was three and a half feet from the extremity of the hair on one shoulder to that on the other, and yet this is by no means the largest specimen that has been obtained.

Skin.—The skin is very thick on the exposed parts of the body. On the arms, shoulders, back and limbs, the thickness is one fourth of an inch; on the head over the crest three fourths of an inch thick; the great thickness prevented my preserving it.

Head.—The most prominent feature in the fresh subject, as well as in the skeleton, is the crest or ridge in the course of the parieto parietal *suture*, increasing in height from before backwards to a point directly over the intersection of this suture with the occipito-parietal—which is the highest point. This crest is not chiefly formed by the bony ridge on the skull, but by the thickness of the scalp before mentioned, and by the length and stiffness of the hair, which is always erect.

This crest the animal when enraged is said to draw forward, giving him an appearance more fierce than ordinary, which is frightful enough. This crest gives the face and head a more anthropoid appearance than the dried skull presents. This projection gives it the appearance of a forehead. The face, unlike that of the

Chimpanzee, is covered with short hair, except about the mouth and nose. The eyes are moderately large, not prominent, of a dark chestnut color. The nose is broad, projecting a very little above the surface of the face. The alæ are of thin and loose skin, capable of considerable distension. The mouth is very wide —the upper lip thick and hairless. The lower lip is a huge muscular flop, very distensible, which the animal drops over his chin when he is enraged, making his appearance exceedingly terrific.

The ears are disproportionally small; they are hairless and stand out from the head. The muscles of the head are large, filling up a large part of the depressions between the ridges of the scull. The auricular group not large, but the temporal, pterygoid and masseter muscles are of great strength, as might be supposed from the size of the inferior maxillary bone. The neck is of moderate length, but of great size, chiefly owing to the great length of the spinous processes of the several vertebræ, but increased by the thickness of skin and length of hair. The circumference of neck of this specimen was one foot and ten inches.

The chest is narrow anteriorly and superiorly, but the contents of the entire cavity large, the lower end of the sternum projecting, and the sternal cartilages, except the first three, long. The circumference of the chest, after the evacuation of the thorax and abdominal viscera, was four feet four inches. These viscera were evacuated by the natives before I received the body. All the muscles of the chest are largely developed, as are also all the muscles of the trunk.

The arms, it will be seen from the skeleton, are longer in proportion to the trunk, than are those of the small Chimpanzee, and are covered with a great weight of muscle.

At the insertion of the deltoid the circumference in this specimen was one foot and four inches. The fore arm also is well supplied and covered with hair. The circumference of the wrist was one foot.

The palm of the hand was large, while the fingers and thumb appeared small in proportion to the strength of the arm and fore arm. The palm and surface of the hand and fingers is covered with a thick black skin very little adherent to the true skin beneath, and in appearance resembling a leathern glove. It was removed entire, after maceration. The dorsal surface is covered with hair. The abdomen is large, and covered with lighter colored hair than the back.

The genital organs, in both male and female, are small, but in other respects similar to the smaller species.

This animal is tailless and has no calosities. The lower limbs are very short and slightly curved, but the most remarkable peculiarity is the size of the muscles which cover the femur, *i. e.* those having their origin on the anterior and inferior surface of the pelvis, and their insertion on the femur, together with the extensors and flexors of the legs. Their weight in this case was 18 lbs. The muscles of the leg and foot are not as fully developed as those of the thigh. In the shape of the foot he resembles other Orangs. The weight of this specimen was 170 lbs. without the thoracic, abdominal and pelvic viscera.

Food. He feeds on the various roots and fruits found in the forest. He is, however, to some extent carnivorous, according to my most reliable information.

When man is his prey, he devours him as he does animals that he can catch, though his sluggishness prevents his taking many animals as prey.

The Ngena generally walks on all fours, with his feet placed flat on the ground, like a man, the thighs being flexed upon the leg, at an acute angle.

The open hands are placed on the ground posteriorly and externally to the feet, the arms being nearly parallel to the axis of the body, and thus supporting the body posteriorly to the feet, and not anteriorly, as some have supposed. They act the part of hind rather than fore feet.

The gait is an oscillating motion, caused by carrying forward the extremities of one side at a time, while the body is balanced to the opposite side; then alternately moving the other limbs with a return motion of the body. This is the movement I have seen in the young animal. Besides this gait, I am led to believe that in the forest he has a semi-erect posture, supporting himself by bushes and trees as they come in his way.

He sometimes walks erect, and always rises on his feet when making an attack, though he approaches his antagonist in the stooping posture.

The Ngena is represented as the most terrible monster of his native forests. His appearance is hideous even when dead. Among the natives he is the subject of many allegories, in which he acts some distinguished part, perhaps that of a king or a conqueror—perhaps a defender or a destroyer. In the forests he seems to be the implacable enemy of man.

Though he never lies in wait, yet when he hears, sees or scents a man, he immediately utters his characteristic cry, prepares for an attack, and always acts on the offensive. The cry that he utters resembles a grunt more than a growl, and is similar to the cry of the Chimpanzee when irritated, but vastly louder. It is said to be audible at a great distance. His preparation consists in attending the females and young ones, by which he is usually accompanied, to a little distance. He, however, soon returns with his crest erect and projecting forward, his nostrils dilated and his under lip thrown down, at the same time uttering his characteristic yell, designing, it would seem, to terrify his antagonist; instantly, unless he is disabled by a well directed shot, he makes an onset, and striking his antagonist with the palm of his hands, or seizing him with a grasp from which there is no escape, he dashes him upon the ground and lacerates him with his tusks.

He is said to seize a musket and instantly crush the barrel between his teeth. Some hunters are said to have permitted him to take hold of the musket and carry it to his mouth, firing as it passes between his teeth. This will, however, appear to lack probability, though it is stoutly maintained by the natives.

He is said to be always at war with the leopard, which he destroys if he succeeds in seizing him. The leopard, however, by his superior agility, often wears him out. He is said to spring upon the back of the Ngena and lacerate his neck with his teeth, escaping before he can be seized. This animal's savage nature is very well shown by the implacable disposition of a young one that was brought here. It was taken very young and kept four months, and many means were used to tame it, but it was incorrigible, so that it bit me an hour before it died.

The various stories of his building houses in imitation of the natives—his covering himself with bushes, which he hurls upon his antagonist in his attacks; vanquishing the elephant with clubs, or even using clubs at any time, and numerous other accounts given to credulous whites, are considered ridiculous by the best informed natives. Yet every Mpongue man has a fund of such stories which he vends to children and every one else who will listen to them with credulity.

From my most careful inquiries I can find no one who believes that these creatures are of the same original stock as black men, as some have reported. By most it is considered an insult to suppose it.

His flesh is considered delicate eating by the tribes where he is taken, though the Mpongues consider it quite 'vulgar fare.' The *slaves* here, however, carried away the flesh as soon as it was taken from the bones of my specimen."

Dr. Ruschenberger read a portion of his "Notice of the Academy of Natural Sciences of Philadelphia," the remainder of which was deferred to the next meeting.

February 10th.

Vice-President Wetherill in the Chair.

Dr. Ruschenberger concluded the reading of his "Notice of the Academy."

Whereupon the following Resolutions, offered by William S. Vaux, Esq., were unanimously adopted:

Resolved, That the Members of the Academy have listened with the deepest interest and satisfaction to the "Notice" just read.

Resolved, That the thanks of the Academy be presented to Dr. Ruschenberger for the labor he has bestowed in the preparation of the able and faithful Notice read by him before the Society, and that he be requested to furnish a copy of the same to the Committee on Proceedings for publication.

Resolved, That a Committee of three members be appointed to communicate the foregoing Resolutions to Dr. Ruschenberger.

Committee, Mr. Vaux, Dr. Bridges and Mr. Pearsall.

The Rev. Mr. Langstroth read a paper entitled, "On the impregnation of the eggs of the Queen Bee;" which being intended for publication in the Proceedings, was referred to Dr. Leidy, Dr. Le Conte and Dr. Fisher.

Dr. Le Conte presented for publication in the Proceedings, the following papers: "Hints towards a Natural Classification of the family Histrini of Coleopterous Insects;" "Synopsis of the Parnidæ of the United States;" "Synopsis of the Eucnemidæ of Temperate North America;" all of which were referred to the following Committee: Dr. Bridges, Dr. Leidy and Dr. Elwyn.

A letter was read from the Librarian of the British Museum, dated Jan. 19th, 1852, acknowledging the receipt of No. 10, Vol. 5, of the Proceedings.

Also a letter from the Royal Academy of Sciences of Stockholm, dated April 20th, 1851, acknowledging the receipt of No. 12, Vol. 4, and No. 1, Vol. 5, of the Proceedings.

And a second letter from the same, of same date, accompanying copies of the Transactions and Bulletin of that Institution for 1849 and '50.

Dr. Leidy presented, for the inspection of the members, an interesting specimen of a fossil turtle, from the collection of Dr. D. D. Owen, made in Nebraska territory, and sent to him, for examination, by the Smithsonian Institute. It proves the existence of a species distinct from any of those before described from the same region, for which the name *Emys Culbertsonii* is proposed. Its measurements are as follows:

Length of the five vertebral scutes, . . .	17	inches.
Transverse breadth of carapace in curve, . .	22	"
Height, ...	6½	"
Length of middle vertical scute, . . .	3	"
Breadth " " . . .	4	"

Mr. Phillips announced that the collection of Minerals of the late Mr. Gilmore, of Baltimore, was for sale.

February 17th.

Vice President BRIDGES in the Chair.

Letters were read from the Secretary of the Trustees of the New York State Library, acknowledging the receipt of No. 12, Vol. 5, of the Proceedings, and of a copy of Dr. Meigs' Memoir of Dr. Morton.

From the Geological Society of London, dated June 24th and Nov. 6th, 1851, returning thanks for copies of late Nos. of the Proceedings.

Mr. Vaux, on behalf of the Committee on the subject, read a communication from Dr. Ruschenberger, dated Philadelphia, Feb. 13, 1852, in reply to the letter from the committee, enclosing a copy of the Resolutions adopted at the last meeting in relation to his "Notice of the Academy."

Dr. Leidy directed the attention of the members to several fossils lying on the table, which belong to the cabinet of the Academy.

One of them is a lumbar vertebra, without the epiphyses, and with the transverse processes and neural arch broken off, obtained from the Miocene of Virginia, and presented by Mr. T. Conrad. It belongs to a species of Delphinus, most probably extinct, for which the name *D. Conradi* is proposed, in honor of one who has done so much in American Palæontology. The epiphysial extremities of the vertebral body are pentahedral.

Length of vertebral body, ...	2¼ inches.
Breadth of epiphysial extremities, . . .	1¾ "
Breadth of base of transverse processes, . .	1½ "

The other specimens consist of an entire dermal scale and the half of a second, from the Green Sand formation of Mount Holly, New Jersey. These belong to some Crocodilian reptile of large size. They are deeply sculptured, but possess no carina, as in the existing Crocodiles. Possibly they may belong to the Saurian, characterized from some vertebræ under the name of Cimoliasaurus magnus* *Leidy*, but at present I prefer referring them to a new genus and species under the name of *Thoracosaurus*† *grandis*.

Long diameter of the entire scale, . . .	3¼ inches.
Short "	3 "
Greatest thickness, ...	7 lines.

Mr. Langstroth made a few observations on the specimens of royal cells of the Bee, presented by him this evening.

Dr. Le Conte offered the following observations:

On the Difference between Primordial Races and Introduced Races.

A want of power to discriminate between permanent varieties developed in species and primordial forms, has been a prolific source of confusion in all discussions regarding the plural origin of species. I propose to examine here into some differences which, so far as I am able to learn, will form a certain basis for this distinction, so much to be desired; and which, should they be found, on farther examination, to have the universal character which I am inclined to give them, may have the effect of saving the world much of the muddy philosophy, which seems to be the favorite style of ethnological writers.

The principle which I am about to lay down, is founded on the unchangeability of certain characters, throughout an entire genus; these characters are connected with the structure of the external parts, and may seem at first to be of but slight importance, yet generally. on close examination, they will be found more or less intimately connected with the functions which the animal is destined to perform in the system of nature.

Now, it is a singular fact, that all the varieties of domestic animals and plants, which can be clearly shown to have originated in unmixed breeds, differ from their parent stocks by characters which, except in the case of these, so to speak, *artificial varieties*, are unchangeable in the genus. Thus, these artificial varieties would seem to differ from their parent stocks, not by characters which are of specific value, but by those which are of incomparably greater importance, and which, if not accompanied by identical organization in all other organs, would widely separate the beings which possess them from their parents. In many instances the characters possessed by the artificial varieties, are absolutely impossible in the plan on which the genus, or even the order, is created.

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* Pro. Acad. Nat. Sci. vol. v, p. 325.

† θωραξ a coat of mail.

Instances of such permanent varieties may be readily recalled by every one; some of the most familiar are: the hornless variety of domestic cattle; the tailless variety of domestic cat, found in the Isle of Man; the long-haired cat, known as the Angora, or Persian cat; the various forms of fowls with additional toes, and without tails; the varieties of pigeons and fowls with uncouth and distorted arrangement of plumage.

The origin of some of these is lost in the depths of the past, while others are continually being introduced.

In all the examples cited above, it will be found that the monstrosity depends on the loss of a character belonging to every species of the genus or tribe to which the parent stock belongs, or on the assumption of a character not found in any species or genus of that group.

In the case of the hornless cattle, the part wanting, if not entirely coextensive with the order of ruminants, is at least essential to the genus Bos.

In the anomalously feathered varieties of fowls and pigeons, the animal assumes structures either unknown in the groups to which it belongs, or else (as in the case of the 'ruffler') entirely impossible in any species of bird whatever.

The novelty in this principle is, that in the disputed cases of plural origin, the slightness of the unchangeable differences, found in different races, becomes a very strong, and, indeed, an invincible argument against the supposition that they have been derived from each other by the operation of external or internal causes.

The advocates of the single origin of man or of dogs, are therefore in the unpleasant predicament of having proved too much, since the difference between the latter, on comparison with undeniably distinct wild species of wolf and fox, is in those characters which alone can manifest specific distinction.

In the case of man the differences are in such particulars as alone could be changed without degrading him from his place at the head of the organic world.

It is almost needless for me to add that this principle extends to the vegetable kingdom, as every one will at once see in greenhouse and domestic plants, that the cultivated varieties are distinguished from each other by important structural differences, not recognized in the genera to which they belong.

In all species or races there are individual differences of less importance than specific characters, which by care may be isolated, and form what are apparently races. Thus snub noses almost invariably reproduce snubs; aquiline noses, in the same way, continue in families for numbers of generations. Yet, not to speak of the unimportance of such marks, these cases may be distinguished by the frequency with which exceptions occur. The numerous varieties of cultivated fruits come under this head.

February 24th.

Vice-President BRIDGES in the Chair.

The Committee to which was referred the following papers by Dr. Le Conte, reported in favor of publication in the Proceedings:

Hints towards a Natural Classification of the Family HISTRINI *of Coleopterous Insects.*

BY JOHN L. LE CONTE, M. D.

It is rarely that any subject treated by the illustrious Erichson is found capable of improvement. It is therefore with reluctance and hesitation that, after a minute study of the North American species of Hister, I find myself under the necessity of proposing important modifications of the arrangement adopted by him.*

The great increase in the number of our species, since the publication of the monograph of Histers by my father,† has made me acquainted with many variations of structure, too unimportant to serve as foundations for separate genera, yet absolutely incapable of entering any of the genera established by Erichson. Some of these anomalous species have been described by me in the Annals of the Lyceum of Natural History, vol. 5.

By a careful comparison of such forms with the species to which, by obvious characters, they are most nearly allied, I have been led to believe that the genera in this group have been unnecessarily increased, by the use of principles of division which are by no means of generic value, and which scarcely serve to define small groups of species.

I allude more especially to the structure of the tibiæ, which holds so important a place in the system of Erichson. The difficulty of deciding upon such an indistinct character as the form of the tarsal groove of the anterior tibiæ, and the decidedly variant structure of the posterior tibiæ in several of the genera, has led me to reject entirely the characters drawn from those parts of the body. The special variations referred to will be exposed more fully under the genera Hister and Saprinus below.

Following Erichson, I have divided the genera into three groups according to the position of the head and the form of the prosternum. The genera may afterwards be separated according to the following table:

A. Caput porrectum: prosternum antice non lobatum.	
Mandibulæ dentatæ	HOLOLEPTA Payk.
Mandibulæ dentatæ, prosternum latum planum . .	[1] PHYLLOMA Er.
Mandibulæ dentatæ, prosternum elevatum, subacuminatum	[1] OXYSTERNUS Er.
B. Caput retractum; prosternum antice valde lobatum.	
a. Scrobiculi antennales antici.	
1. Tarsi antice unguiculo unico	[1] CYPTURUS Er.
2. Tarsi omnes biunguiculati.	
Mandibulæ porrectæ, antennæ sub frontis margine insertæ, capitulo 3-articulato	[2] HISTER Linn.
Mandibulæ porrectæ, antennæ sub frontis margine insertæ, capitulo solido, truncato	[3] HETÆRIUS Er.
Mandibulæ retractæ, antennæ in frontis margine insertæ, capitulo 3-articulato, rotundato, ...	EPIERUS Er.
Mandibulæ retractæ, antennæ in frontis margine insertæ, capitulo 3-articulato, truncato	TRIBALUS Er.
b. Scrobiculi antennales medii, laterales.	
Antennæ articulo 8vo latiore	DENDROPHILUS Leach.
Antennæ articulo 8vo non latiore	PAROMALUS Er.
C. Caput retractum, prosternum antice non lobatum,	
a. Antennæ sub frontis margine insertæ.	
Mandibulæ exsertæ; scrobiculi antennales antici .	CÆROSTERNUS n. g.
Mandibulæ exsertæ, scrobiculi antennales ad prosterni latera siti	[4] SAPRINUS Leach.
Mandibulæ clypeo obtectæ	[1] TRYPONÆUS Er.

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* Klug's Jahrbücher für Insectenkunde.

† Boston Journal of Natural History. vol. V, p. 32.

[1] No North American species.

[2] Including Omalodes Er.; Platysoma Leach, Er.; (?) Plæsius Er. and (?) Placodes Er. I have not examined the last two genera, but the description furnishes no good characters for separating them.

[3] Hister brunnipennis Rand., and a new species. [4] Including Pachylopus Er.

b. Antennæ in frontem insertæ.

Scrobiculi anntennales medii, laterales, prosterno subproducto . . . . Teretrius Er.
Scrobiculi antennales ad prosterni latera siti . . . Plegaderus Er.
Scrobiculi antennales antici . . . . . . Onthophilus Leach.
Scrobiculi antennales medii, laterales, prosterno truncato Abræus Leach.

Hister Linnè.

I have included in this genus Omalodes and Platysoma; as they are founded on slight differences in the form of the tibiæ. Plæsius and Placodes will also probably enter here; at least I cannot find anything to separate them, except differences in the spine of the posterior tibiæ.

The posterior tibiæ of this genius, are generally broad, and externally armed with two series of spines: sometimes a range of bristles on the posterior face of the tibiæ is enlarged so as to stimulate a third row of spines; sometimes (Hister arcuatus Say) the whole outer surface of the tibiæ is rough with confused spines; in Hr. costatus (n. sp.) the posterior tibiæ are narrow, and the spines are very fine: these tibiæ are usually not toothed on the outer margin, yet in H. sexstriatus Lec. they are distinctly four-toothed: they are also toothed in the species referred to Omalodes and Platysoma, the number of teeth in the latter being variable, and the teeth themselves frequently indistinct: they are entirely smooth in some small species allied to H. subrotundus, and belonging to Erichson's 3d division; the posterior feet are smooth, and the intermediate ones armed with a single tooth near the apex in H. corticalis Lec.; finally, the posterior tibiæ are broad, very much compressed and finely serrate in Omalodes Harrisii Lec.

The anterior tibiæ are broad, compressed and more or less distinctly toothed on the outer margin, usually with a single row of very short articulated spines; on the anterior face is a groove for the reception of the tarsus; the inner margin of this groove is sharply defined; the outer margin indistinct, in most species; more distinct in the species referred to Omalodes; some of the species of Platysoma have the outer margin distinct, while in others (H. Carolinus Payk.) it is quite indistinct. The species, with the exception of the large tropical species, which would probably form a separate division, can be arranged according to the following table; the internal marginal stria of the thorax, when it exists, is entire, und extends around the whole apex of the thorax; the outer stria always ends at the anterior angle.

A. Thorax stria marginali interiore integerrima, antice ambiente.
* Thorax stria marginali margini valde approximata.
Thorax stria marginali unica; (tibiæ posteriores dentatæ.) *Omalodes* Er. 1.
Thorax striis marginalibus duabus; (tibiæ post valde compressæ serrulatæ.) 2.
** Thorax stria marginali interiore a margine remota.
a. Thorax margine ciliato; (scrobiculi antennales non profundi.)
Tibiæ posteriores dilatatæ . . . . 3.
Tibiæ posteriores tenues. . . . . 4.
b. Thorax margine glabro; (scrobiculi antennales profundi.)
a. Tibiæ posteriores subdentatæ . . . . 5.
b. Tibiæ posteriores biseriatim spinulosæ.
† Mesosternum emarginatum.
α. Epipleuræ excavatæ unistriatæ: (tibiæ anticæ multidentatæ) . 6.
β. Epipleuræ non excavatæ, pluristriatæ.
Tibiæ anticæ parce dentatæ, epipleuræ bistriatæ . . . . . 7.
Tibiæ anticæ parce dentatæ, epipleuræ tristriatæ . . . . . 8.
Tibiæ anticæ serrulatæ vel muticæ, epipleuræ bistriatæ . . . . 9.
†† Mesosternum truncatum.
Epipleuræ bistriatæ . . . . 10.
Epipleuræ angustissimæ, unistriatæ . . . . 11.

B. Thorax stria marginali interiore nulla.

† Mesosternum truncatum ; prosternum bistriatum.

Prosternum striis parallelis : (thorax stria exteriore nulla, corpus depressum) 12.
Prosternum striis convergentibus ; (thorax stria exteriore distincta vel nulla, corpus convexum) . . . . 13.

†† Mesosternum emarginatum : prosternum estriatum, (*Platysoma* Leach.)

Prosternum postice planum, (corpus depressum) . . . . . 14.
Prosternum postice compressum et marginatum, (corpus cylindricum) . 15.

The species found in the United States may be distributed as follows :

1, corresponds to Omalodes Er. : the only United States is H. borealis (*Omalodes borealis* Lec.)

2, contains only H. planipes (*Omalodes Harrisii* Lec.) The name Harrisii being preoccupied for a species of group 6, must of course be changed.

3, contains H. arcuatus Say ; binotatus Lec ; lævipes Er. and a new species allied to arcuatus.

[*]5, is composed of a Californian species, H. 6-striatus Lec. (An. Lyc. 5.)

6, contains H. interruptus Beauv. (*obtusatus* Harris) ; merdarius Payk ; immunis Er. ; Harrisii Kirby ; diversus Er. (*stygicus* Lec.) ; fœdatus Lec. ; cognatus Lec. ; marginicollis Lec., and one new species.

7, contains H. dispar Lec. ; indistinctus Say ; depurator Say ; and one new species.

8, H. spretus Lec. ; curtatus Lec. ; and two new species.

9, H. civilis Lec. ; cœnosus Er. (*decisus* Lec.) ; punctifer Payk ; abbreviatus Fabr. ; bifidus Say, and perhaps H. repletus Lec. which I have not examined ; it is doubtful whether H. punctifer is really a native of our territory ; the only one found may have been introduced.

10, H. sedecimstriatus Say ; americanus Payk. ; exaratus Lec. ; and two new species.

11, contains only H. bimaculatus Linn. (*obliquus* Say).

12, H. venustus Lec. and corticalis Lec. Small flat species having the appearance of Platysoma ; the posterior tibiæ are almost glabrous ; H. venustus has the lobe of the prosternum shorter than any other species I have seen.

13, H. subrotundus Er. and H. vernus Say ; small convex species, one of which has an entire marginal stria on the thorax, the other none. A new species from Mexico has an abbreviated stria at the margin of the thorax.

14, contains the small flat species forming the genus Platysoma Leach as amended by Erichson, the posterior tibiæ are more or less distinctly toothed. Our species are : H. carolinus Payk. ; depressus Payk. ; parallelus Say ; coarctatus (*Platy. coarctatum* Lec.) ; and a new species.

15, Cylindrical species allied to the preceding ; H. cylindricus Payk. ; attenuatus (*Platy. attenuatum* Lec.) ; gracilis (*Platys. gracile* Lec., *P. cylindricum*‡ Er., *Hister frontalis*‖ Say.)

CÆROSTERNUS.

Caput deflexum, mandibulis retractis sed non obtectis, acutis.

Antennæ sub frontis margine insertæ, funiculo filiformi, capitulo triarticulato, ovali, compresso, apice subtruncato.

Prosternum latum quadratum, utrinque truncatum ; scrobiculi antennales angusti profundi ad angulum thoracis inferne siti. Tibiæ anticæ compressæ, subdilatatæ, posteriores tenues glabræ ; tarsi posteriores non recepti.

The body is globose, very convex ; the abdomen perpendicularly deflexed at the tip : the funiculus of the antennæ is filiform, the first joint longer and a little thicker than the others ; the prosternum is very broad, truncate posteriorly, very slightly rounded anteriorly ; the cavities for the antennæ are very deep, situated at the anterior angles, between the upper and under surface of the prothorax, and open laterally. Only two species are known to me, 1. C. americanus (*Tribalus americanus* Lec.) and 2. C. lævissimus, with the upper surface very smooth and shining, the epipleuræ less suddenly inflexed than in C. americanus, with only two very fine lateral striæ; the dorsal striæ of the elytra obsolete: length ·10. It is found in Cuba under the bark of trees, and was sent by Don Felipe Poey. The body is narrower and more elevated than the preceding.

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[*] Group 4 is founded upon a curious nondescript Mexican species, H. costatus, in which the striæ of the elytra are replaced by elevated ridges.

SAPRINUS Leach.

The posterior tibiæ of this genus are usually but little dilated; the external margin is furnished with three series of spines; some of the species of group 9 have four confused series (S. palmatus), others have the spines very dense and occupying a large surface (S. sulcifrons). On account of these variations I am inclined to unite Pachylopus (Er.) with this genus, although the singular sexual character mentioned by Erichson is not found in any Saprinus. At all events, if Erichson's species should remain as a distinct genus, it must be upon very distinct characters from those indicated by him.

The species known to me may be arranged as follows:

A. Caput antice non marginatum; prosternum compressum, elevatum, planum; epipleuræ tristriatæ.
Prosternum striis utrinque divergentibus, ... 1.
Prosternum striis antice conjunctis, postice parallelis. . . . . 2.
B. Caput antice non marginatum; epipleuræ bistriatæ.
Prosternum tranverse convexum, striis nullis . . . . 3.
Prosternum transverse convexum, antice utrinque foveatum, striis parallelis, antice abbreviatis . . . . 4.
Prosternum transverse convexum, non foveatum, striis antice divergentibus 5.
Prosternum transverse convexum, antice utrinque foveatum, striis remotis divergentibus . . . . 6.
Prosternum compresso-carinatum, striis remotis divergentibus . . . 7.
C. Caput antice marginatum, prosternum striis valde approximatis, postice divergentibus, antice non divergentibus.
Prosternum compressum, striis integris, antice convergentibus . . . 8.
Prosternum compresso-carinatum, striis conniventibus, sæpius indistinctis 9.

The United States species may be distributed as follows:

1, Contains two Californian species: S. alienus Lec.; discoidalis Lec.; the latter approximates somewhat to division C; and in some specimens there is a very faint trace of the double line found on the front of the species belonging to that division.

2, S. deletus Lec.; interceptus Lec.

3, S. interstitialis Lec.; a singular oblong species, with the striæ of the elytra nearly parallel.

4, S. obscurus Lec.; pectoralis Lec.; pæminosus Lec.; all from California.

5, S. lugens Er. (*californicus* Man.); Oregonensis Lec.; imperfectus Lec.; impressus Lec.; infaustus (*piceus*|| Lec.); pensylvanicus Er.; and three new species.

6, S. conformis Lec.; assimilis Er.; minutus Lec.; placidus Er.; insertus Lec.; obductus Lec.; ciliatus Lec.; vinctus Lec.; laridus Lec.; scissus Lec.; and one new species.

7, S. vestitus Lec.; fimbriatus Lec.: plenus Lec.; vitiosus Lec.; lubricus Lec.; cœrulescens Lec.; all from California; and three new species, two of which are from Missouri Territory, and the other from Georgia.

8, S. sphæroides Lec.; (*bigener* Lec.); fraternus Lec.; mancus Lec.; (*Hister mancus* Say); estriatus Lec.; bigemmeus Lec.. and one new species.

9, Contains species found near the sea shore; they may be arranged in two groups, according to the structure of the posterior tibiæ.

Those with the spines in three series are: S. patruelis Lec.; lucidulus Lec.

Those with the spines more numerous and confused are: S. dimidiatipennis Lec. (var. *Hister palmatus* Say); sulcifrons Man.; serrulatus Lec.; and gaudens Lec.;

these species were referred by me to the genus Pachylopus (vide Ann. Lyc. Nat. Hist. 5.) The epipleuræ of these last are marked with three striæ. The spines on the tibiæ of S. dimidiatipennis are less numerous than in the others, and form four tolerably distinct series.

Synopsis of the PARNIDÆ *of the United States.*

BY JOHN L. LE CONTE, M. D.

As I have concluded, for reasons detailed below, to introduce the anomalous genus Eurypalpus into this family, I have found it necessary to substitute an entirely new diagnosis for the one given by Erichson. The one proposed by me, in order to include the new genus, is as follows:

Antennæ frontales, non capitatæ; oculi rotundati, mandibulæ retractæ; coxæ anticæ vel subcylindricæ, vel globosæ, acetabulis e prosterno et metathoracis episternis compositis receptæ; pedes ambulatorii, tarsi 5-articulati, cylindrici, unguiculari maximo, unguibus validis armato; trochanteres simplices; abdomen 5—7-articulatum, articulis anterioribus immobilibus.

The character which especially distinguishes this family is the structure of the tarsi, which enables the species to grasp firmly objects resting in strong currents of water. This family may be divided into three groups.

Div. 1, *Eurypalpini.*

Caput exsertum, ore inferno, labro distincto, inter antennas transverse elevatum; coxæ anticæ transversæ, trochantino valde conspicuo; parapleuræ appendiculatæ; abdomen 7-articulatum.

EURYPALPUS Dej.

Antennæ serratæ 11-articulatæ; palpi maxillares valde elongati, articulo ultimo latiore, securiformi, apice subacuto; labiales brevissimi, articulo ultimo minuto subulato.

This very remarkable genus is mentioned by name in Dejean's Catalogue, and is placed by that author towards the beginning of his group Malacodermata, near Cyphon, with which however, it seems to have but little affinity. Erichson, probably never having seen the insect, referred it upon Dejean's authority, to Cyphones, with a doubt. (Vide Agassiz Nom. Zool.) A close comparison with other groups has convinced me, that although its affinities in any direction are difficult to discover, it must still be considered as forming a part of the present family.

The body is depressed, narrowed in front, obtusely rounded behind. The mandibles are small, acute and entirely concealed by the broad and emarginate labrum; the mentum is trapezoidal; the ligula short, square and slightly emarginate at tip. The prosternum is truncate in front, prolonged behind into an acute point which passes in a narrow groove extending the whole length of the mesosternum. The anterior coxæ are precisely as in Helichus; the posterior coxæ are slightly laminate and dilated interiorly as in Helichus, but are contiguous at their base; the parapleuræ are broadly truncate at the external posterior angle, and the parallelogram is completed by a large triangular plate. The abdomen is 7-jointed, the first three joints are immovable, the 5th deeply emarginate, the 6th retracted so as to have only the edge visible, the last joint almost round: the feet have the last joint much longer than the other four united, with strong simple claws.

The larva resembles in appearance a Trilobite, and has been described by De Kay as a Crustaceous animal under the name *Fluvicola Herricki.* It is entirely aquatic, and breathes by means of branchial filaments, the principal of which proceed from the anus. For a full description of it and the pupa see Agassiz' Lake Superior. It bears a close comparison with the larva of Elmis by Erichson, (Deutschl. Insect. 525).

The perfect insect lives on bushes over the surface of running water, and is also found creeping over the wet stones in torrents; the under surface of the body is sericeous, with fine fulvous hair, perfectly like Helichus.

1. E. **Lecontei**, subdepressus, ater, subtiliter punctulatus et pubescens, thorace antice fortiter angustato, basi bisinuato, angulis posticis acutis, elytris marginatis, lineis elevatis minus distinctis, pedibus rufis. Long. ·2.

Western New York and Pennsylvania. The great facilities and assistance which my father, Major Le Conte, his constantly extended to me in my scientific labors, will be a sufficient excuse for my continuing the name under which this curious insect is mentioned by Dejean, and by which it is already known to a large number of European entomologists.

Div. 2. *Dryopini* Er.

Coxæ anticæ transversæ, trochantino conspicuo, abdomen 5-articulatum.

LARA.

Caput porrectum, subtus non obtectum; antennæ simplices elongatæ.

Body elongate, narrowed and subacute anteriorly. Head not deflexed; antennæ with the first joint cylindrical, a little longer and thicker than the two following, which are equal; the fourth is a little shorter; the rest are broken off, (probably serrate. The labrum is large and broad, rounded in front, and scarcely emarginate; the mandibles slightly emarginate at tip. Mentum trapezoidal, ligula broad, truncate in front. Prosternum with a short point behind, which fits into the excavated mesosternum; middle coxæ moderately distant; posterior coxæ contiguous at base, very slightly and gradually dilated internally. Legs as in Helichus. The body above and beneath coated with very fine pubescence.

This genus seems to be the desired link connecting the anomalous form Eurypalpus with the true Parnidæ; the abdomen, coxæ and feet are precisely the same as the latter, while the long simple antennæ are anomalous in this subdivision; the large uncovered labrum is not seen in this subdivision, but is found in Elmis, Macronychus, &c., of the next subdivision, to which, however, it cannot be referred on account of the transverse form of the anterior coxæ. The thorax is much narrowed in front, with the posterior angles acute; scutellum large, acute; elytra almost parallel, rounded at apex. The genus is named after a water nymph.

1. L. **avara**, olivaceo-picea, thorace confertim grosse punctato, lateribus bisinuatis, disco elevato, canaliculato, margine antico late depresso, elytris nitidis subtiliter striato punctatis, pone basin oblique impressis. Long. ·3.

Sacramento, California, Mr. Rathvon. The thorax has the disc suddenly elevated and canaliculate, so as to present two large bosses, the lateral margin is a little excavated anteriorly and posteriorly; the alternate interstitial spaces of the elytra are more distinctly sericeous; the feet are black, the femora at base ferruginous.

LUTROCHUS Er. (Ins. Deutschl. 509.)

1. L. **luteus**, ovalis, convexus, æneo-luteus, subtiliter punctulatus, et brevissime dense pubescens; thorace lateribus rectis, basi bisinuata, medio leviter producta, et truncata. Long. ·12. This very remarkable insect was found by Lieut. H. Haldeman, U. S. A., at Fort Gates in Texas; for my specimens I am indebted to his brother S. S. Haldeman. The only other species known is from Brazil.

PELONOMUS Er.

1. P. **obscurus**, subcylindricus, piceus, pube erecta dense vestitus, thorace confertim punctulato, lateribus rectis obliquis, basi bisinuata, medio late truncata, angulis posticis acutis, elytris dense subtiliter punctatis, obsolete striatis, tibiis tarsisque rufis. Long. ·26.

Southern and Western States, very rare; remarkable for the eyes being nearly as hairy as the rest of the body.

Helichus Er.

A. *Elytra vitta suturali nitida, fere glabra.*

1. H. **striatus**, elongatus, atro-olivaceus, fere opacus, thorace confertim punctato, latitudine vix breviore, antrorsum angustato, lateribus rotundatis, disco ante basin elevato, medio impresso, basi subito depressa, utrinque foveata, elytris striis punctatis sat profundis, interstitiis alternatim paulo elevatis, sutura nitida, Long. ·24. Vermont. C. B. Adams.

2. H. **basalis**, minus elongatus, obscure olivaceus, subnitidus, thorace punctato, latitudine breviore, antrorsum angustato, lateribus versus basin valde inflexis, disco ante basin transversim elevato, basi depressa, elytris seriatim foveatis, seriebus internis duabus minus distinctis, usque ad striam 3^{iam} nitidis. Long. ·19.
Pennsylvania, Dr. Melsheimer. Troy, (N. Y.) Prof. Adams. This species was given me by Dr. Melsheimer as *Parnus fastigiatus* Say, from which it differs by having the posterior angles of the thorax rectangular; the hairs on the shining part of the elytra are sparse, but not at all fasciculate.

3. H. **foveatus**, elongatus, atro-olivaceus, fere opacus, thorace confertim punctato, latitudine non breviore, antrorsum rotundato, minus angustato, disco versus basin minus subito depresso, utrinque foveato, elytris striis grosse punctatis interstitiis internis tribus nitidis. Long. 20.
Sta. Fe (New Mexico.) Fendler.

4. H. **suturalis**, elongatus, obscure olivaceus, opacus, thorace confertim punctato, latitudine non breviore, antrorsum non angustato, angulis posticis, rectis, elytris seriatim punctatis, vitta suturali nitida. Long. ·20.
San Diego, California. One specimen.

B. *Elytra æqualiter pubescentia.*

5. H. **productus**, elongatus, obscure olivaceus, opacus, thorace confertim punctato, latitudine non breviore, antrorsum vix angustato, angulis posticis acutis productis elytris seriatim punctatis, versus suturam subnitidis. Long. 30.
San Diego.

6. H. **lithophilus** Er. Ins. Deutschl. 510. *Elmis lithophila* Germ. Ins. Nov. 88. Pennsylvania and New York.

7. H. **Gilensis**, elongatus, obscure olivaceus, opacus, thorace confertim punctato, antice vix angustato, lateribus ad basin paulo inflexis, angulis posticis rectis, elytris totis opacis, seriatim punctatis. Long. ·17.
One specimen found near the villages of the Pimas, in the valley of the Gila.

8. H. **fastigiatus**. *Parnus fastigiatus* Say. Long's Exped. 2, 275. Unknown to me: belongs to division A.

Div. 3. *Elmini* Er.

Coxæ anticæ subglobosæ; abdomen 5-articulatum.

Limnius Müll. Er.

1. L. **fastiditus**, fusco-æneus, oblongo-ovatus, thorace punctato convexo, angulis anticis porrectis, posticis acutis, striola basali utrinque impresso, elytris seriatim punctatis, parce punctulatis, vitta utrinque flava, integra, ad humerum paulo dilatata. Long. ·11. Lec. Agass. Lake Superior, 217.

2. L. **elegans**, niger, vix æneacens, elongato-ovatus, thorace vix punctulato, angulis anticis minutis, posticis rectis, striola basali utrinque impresso, elytris seriatim punctatis, vix subtilissime punctulatis, vitta a humero ad medium, alteraque a medio ad apicem obliquis flavis ornatis, antennis pedibusque testaceis. Long. ·09.
Massachusetts. Prof. Adams.

ELMIS Latr.

1. E. bivittatus, piceus, elongatus cylindricus, antennis tarsisque flavis, thorace convexo, parce punctato, rufescente, margine antico nigro, lateribus leviter rotundatis, angulis posticis rectis, elytris punctato-striatis, vitta lata integra lutea utrinque ornatis. Long. ·14.

One specimen on the Upper Mississippi; judging from a drawing, this may be *Elmis bivittatus* Dej. Cat.

2. E. quadrinotatus Say, Journ. Ac. Nat. Sc. 5, 187. *Elmis vittatus* Mels. Proc. Ac. Nat. Sc. 2, 99. Common in the Middle States. Dr. Melsheimer's species, as I know by actual inspection, is only an immature specimen of the not unusual variety with the spots confluent forming a vitta. This species is much smaller and less cylindrical than the preceding: the feet are sometimes entirely ferruginous.

STENELMIS Dufour.

1. S. sinuatus, elongatus, piceus, thorace elongato, inæquali, pone apicem magis angustato, angulis anticis porrectis, apice medio producto et rotundato, lateribus late sinuatis, elytris punctato-striatis, interstitio 2ndo basi, 5toque carinatis, macula humerali alteraque subapicali flavis ornatis, tarsis antennisque ferrugineis. Long. 12.

One specimen Tolula, Georgia: the thorax is elevated in the middle, deeply channelled, and has two tubercles on each side near the margin.

2. S. crenatus, elongatus, ater, thorace elongato, inæquali, ante medium angustato, angulis anticis porrectis, apice medio late rotundato, lateribus late subsinuatis, elytris punctato-striatis, interstitio 2ndo basi 5toque carinatis, antennis ferrugineis. Long. .12.

Elmis crenatus Say, Long's Exped. 2, 275. Pennsylvania Melsheimer: Niagara: the thorax is less suddenly narrowed in front, and the sides not widened at the apex, but parallel: the sculpture as in the last.

3. S. bicarinatus, elongatus, ater, thorace elongato, vix inæquali, antrorsum angustato, lateribus rectis, elytris profunde punctato-striatis, interstitio 5to carinato, vitta angusta lutea ornatis, antennis tarsisque ferrugineis. Long. ·12. Ohio, Haldeman: the impressions of the thorax as in the preceding, but very faint.

4. S. pusillus, ater, thorace inæquali, impressione oblonga ad medium, carinaque utrinque laterali notato, lateribus subrectis, elytris punctato-striatis, interstitio 2ndo basi, 4to usque ad medium, 5toque carinatis, macula humerali, alteraque subapicali luteis obsoletis, antennis tarsisque ferrugineis. Long. ·08. Rapids of Niagara, June, abundant.

MACRONYCHUS Müll.

1. M. glabratus Say, Journ. Ac. Nat. Sc. 5, 187. Pennsylvania, Melsheimer: Vermont, Prof. Adams.

2. M. lateralis Mels. Proc. Ac. Nat. Sc. 2, 99. Unknown to me.

ANCYRONYX Er.

1. A. variegatus Er. Ins. Deutschl. 522. *Macronychus variegatus* Germ. Ins. Nov. 89: Sturm Cat. 2nd 63, tab. 2, 12: *Elmis cinctus* Say, Journ. Ac. Nat. Sc. 5, 186. Pennsylvania, Vermont, Adams. Germar's name has precedence by one year.

Although not belonging to this family the following may here be added on account of its close relation.

GEORYSSUS Latr.

1. G. pusillus, rotundatus, niger, thorace subtiliter canaliculato, ante medium vix transversim impresso, antice rugose punctato, postice lineola

utrinque elevata submarginali notato, elytris fortiter seriatim punctatis. Long. ·07. Platte River, Nebraska Territory: covers itself with a casing of mud like the European species. The thorax is strongly margined, and has at the base near the lateral margin a little interrupted elevated line. In one specimen the apex of the thorax is emarginate, but I can perceive no other difference.

Synopsis of the EUCNEMIDES *of Temperate North America.*

By JOHN L. LE CONTE, M. D.

Although many entomologists consider that the small group of Coleopterous insects, herein treated, constitute a peculiar family, I am under the necessity, after very careful examination, of viewing them as a mere section of the extensive natural family of Elateridæ, and no more entitled to a distinct place in the series, than any other group of genera in that family.

The character which essentially distinguished the Elateridæ from allied families, as Erichson* has pointed out, is the looseness of the articulation between the pro-and meso-thorax. In order to allow of greater liberty of motion, the posterior margin of the inflexed portion of the prothorax is more or less dilated, or concave, so as to slide over the opposing part of the mesothorax.

This character, although good in theory, is nevertheless sometimes difficult to be seen, and is less developed in the Eucnemides than in Typical Elaters: yet I have never failed to detect it, on close observation. In the genera Cebrio and Cerophytum it is completely wanting: the former recedes too in the prominent mandibles, and the latter in the posterior femora being inserted at the extremity of the elongate trochanter, instead of at its base and side, as in Elateridæ and most other Coleoptera. Although I have not yet detected the affinities of this difficult genus, I think there can be no doubt of the propriety of entirely excluding it both from the Elateridæ and Cebrionidæ.

The Buprestidæ are distinguished from the Elateridæ by the posterior margin of the prothorax beneath, abutting directly against the mesothoracic segment. More distinct characters will be found in the union of the first and second inferior abdominal segments: the suture between them being visible only at the side: a character of great constancy is found in the form of the eyes, which are strongly transverse in all Buprestidæ, while they are generally round in all Elateridæ. In order to include the Eucnemides with the other more typical groups, the Elateridæ may be thus defined.

Coleoptera pentamera antennis serratis, mandibulis retractis, oculis rotundatis; prothorace inferne mesosternum superante; acetabulis anticis parvis rotundatis, in prosterno sitis, postice valde hientibus: coxis posticis laminatis, trochanteribus fulcrantibus; abdomine 5-articulato, segmentis omnibus distinctis.

According to the form of the sternum and front, this family may be divided into several groups, of which the first and easiest, the Eucnemides, may be distinguished by the clypeus expanded in front of the antennæ; the labrum concealed: the head strongly deflexed: the prosternum not lobed in front. Our native genera may be arranged as follows:

A. Tarsi non laminiferi.
    a. Thorax marginatus, subtus non sulcatus.
    1. Palpi tenues, articulo ultimo vix crassiore.
Pedes fortiter compressi, (antennæ minus approximatæ) MELASIS Oliv.
Pedes tenues . . . . THAROPS Lap.
    2. Palpi articulo ultimo dilatato, (sæpius securiformi).
    a. Caput sub oculis non sulcatum.
Laminæ tectrices magnæ intus sensim dilatatæ . . EURYPTYCHUS.
Laminæ tectrices intus subsubito dilatatæ
    tarsi articulo 4to simplici . . . . . EPIPHANIS Esch.
    tarsi articulo 4to subtus breviter lobato . . EMATHION Lap.

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* Germar's Zeitschrift für Entomol. 2, 179.

Laminæ tectrices intus quadrangulariter dilatatæ . ANELASTES Kirby.
β. Caput sub oculis valde sulcatum.
Laminæ tectrices angustæ . . . . HYLOCHARES Latr.
b. Thorax marginatus, subtus ad latera sulcatus.
Antennæ tenues articulo 3^{io} sequentibus longiore . FORNAX Lap.
Antennæ tenues articulo 3^{io} non longiore . . . ISARTHRUS.
Antennæ valde serratæ vel pectinatæ . . . EUCNEMIS Ahrens.
c. Thorax margine interrupto, vel medio obsoleto.
Sulci antennales ad prosterni marginem siti, . . MICRORHAGUS Esch.
B. Tarsi subtus laminiferi.
Sulci antennales laterales . . . . GALBA Esch.

I am not sure that the primary division into genera with and without tarsal appendages is natural, but as I have had no opportunity of examining any genus of the latter division, I do not dare to disturb the arrangement adopted by all previous entomologists. From considerations derived from the study of other Elaters, I am inclined to think that it would be better to divide this portion (B) among those that precede it, putting Galba next to Eucnemis in (b.) and the foreign genus Pterotarsus before Microrhagus in (c.).

MELASIS Oliv.

1. M. pectinicornis Mels. Proc. Ac. Nat. Sc. 2, 148. Pennsylvania Melsheimer; Ohio, Schaum.

THAROPS Lap.

1. T. ruficornis. *Melasis ruficornis* Say, Journ. Acad. Nat. Sc. 3, 166: *Eucnemis* (*Nematodes*) *ruficornis* Say, Trans. Phil. Soc. 6, 187. Missouri; the elytra are yellow, with the posterior half black: sometimes they are entirely yellow. The antennæ of the male are strongly flabellate.

2. T. obliquus. *Eucnemis obliquus* Say, Trans. Am. Phil. Soc. 6, 187. Ohio, Dr. Harris. My specimens are two fifths of an inch long, which is double the size mentioned by Say.

EURYPTYCHUS.

Clypeus ad apicem rotundatus: antennæ articulo 1mo elongato, 3^{io} præcedente longiore, 4—8 subæqualibus crassitie paulo longioribus, 9—10 latioribus, et triplo longioribus, 11 iterum longiore, elongato-ovali. Palpi articulo ultimo dilatato, triangulari; prosternum postice prominens, mesosternum profunde excavatum; tibiæ calcaribus apicalibus distinctis; tarsi tenues, articulo 1^{mo} elongato; laminæ tectrices coxarum posticarum intus gradatim valde dilatatæ, apice subacutæ.

The body is regularly arched, moderately wide for this family, and gradually narrowed behind the thorax; the thorax is much narrowed in front and rounded on the sides. The general aspect is precisely that of Ampedus.

1. E. heterocerus. *Eucnemis heterocerus* Say, Trans. Am. Phil. Soc. 6, 186. Pennsylvania, Messrs. Ziegler and Rathvon.

EPIPHANIS Esch.

The insect that I consider as belonging to this genus, differs from the preceding, in having the 3d joint of the antennæ scarcely elongated: the four terminal joints in the male are equally enlarged, and each is about twice as long as the 7th joint; the plates of the posterior coxæ are suddenly dilated within, and are broadly truncate at the extremity. I am unable to see the last joint of the palpi, which Eschscholtz describes as ovoid.

1. E. cristatus, nigro-piceus, griseo-pubescens, capite punctulato, fronte tenuiter cristata, thorace antrorsum angustato subtilius dense punctato, linea media vix distincta lævi, elytris parallelis punctatis, tenuissime striatis, antennis pedibusque rufo-piceis. Long. ·20. New York, one male specimen.

2. E. canaliculatus, nigro-piceus, griseo-pubescens, capite punctato, subtillissime carinato, thorace lateribus parallelis, ante medium rotundatis, con-

tissime punctato distincte canaliculato, elytris parallelis, rugose punctatis, btiliter striatis. Long. ·2. One female, Pennsylvania. Differs from the last its coarser and denser punctuation, and by the thorax not being regularly rrowed in front.

3. E. cornutus Esch. Zool. Atlas. 1,10. tab. 4, fig. 6; Man. Bull. Mosc. 13, 238. Sitkha: unknown to me.

Emathion Lap.

Sphærocephalus Esch.

This genus has a very great resemblance to the last, and can only be distin- shed by the slight inferior prolongation of the fourth tarsal joint, and by the sternal prominence being acute. In the last genus this prolongation is blunt l rounded. The males of this genus have the 6 last joints of the antennæ a le enlarged.

1. E. atropos. *Euonemis atropos* Say. Trans. Am. Phil. Soc. 6, 187. uisiana, Schaum.

2. E. penetrans, elongatum cuneiforme, atrum confertissime punctatum tilissime fulvo-pubescens, fronte linea tenuissima lævi, thorace latitudine qui longiore, lateribus parallelis antice rotundatis, pone medium late canali- ato, utrinque ante medium obsolete foveato: elytris tenuiter striatis, antennis libusque rufo piceis. Long. ·22—·3

Georgia: in Say's description of the preceding species, probably by a 'clerical' or, the terminal, instead of the penultimate joint of the tarsi is said to be di- ed.

Anelastes Kirby.

1. A. Druryi Kirby. Trans. Lin. Soc. 12, tab. 21, fig. 2: Guérin Ann. t. Soc. Fr. 2d ser. 1, 17. *Silenus brunneus* Latr. An. Ent. 3, 129. Georgia. Guérin refers this genus to the genuine Elateridæ: Erichson in Agassiz' Nonclator Zoologicus places it in Cebrionidæ. The form of the clypeus, how- er, forces it into the present group. The posternum is scarcely prominent hind; the plates of the posterior coxæ are suddenly dilated, by the addition a quadrangular piece.

2. A. Latreillei, obscure rufo-piceus, subnitidus, thorace convexo, subter parce granulato, postice canaliculato, lateribus valde rotundatis, angulis ticis divergentibus, elytris profunde striatis, interstitiis subtiliter rugose ctatis. Long. ·4—·5. Sacramento, California, Rathvon.

The thorax is much more rounded on the sides than in A. Druryi, and the ole surface is much less scabrous; the head is more distinctly granulated than thorax, and the frontal line is faint as in other species.

Hylochares Latr: Guér.

. H. nigricornis. *Melasis nigricornis* Say. Jour. Ac. Nat. Sc. 3, 165. io, Schaum.

Fornax Lap.

Dirhagus Esch.

. F. bicolor. *Hylocharus? bicolor* Mels. Proc. Ac. Nat. Sc. 149. New rk: Wilcox.

. F. badius. *Dirhagus badius* Mels. ibid. 2, 149. Pennsylvania, S. F. rd.

. F. cylindricollis. *Encnemis cylindricollis* Say, Trans. Am. Phil. . 6, 188. Illinois, Georgia, and Pennsylvania.

. F. striatus, elongatus, ater pubescens, confertim punctatus, thorace latiine longiore, lateribus leviter rotundatis, pone medium late canaliculato, tris rugose-punctatis, striis sat profundis, interstitiis modice convexis, antentibiis tarsique rufo-piceis, Long. ·22. One specimen, Georgia. Very simito the preceding, but smaller, and with deep distinct elytral striæ.

ISARTHRUS.

Antennæ tenues, extus paulo incrassatæ, articulis cylindricis, 2—12 subæqualibus, 11^{mo} paulo longiore. (Palpi invisi.) Thorax subtus ad marginem profunde sulcatus: coxarum posticarum laminæ tectrices intus modice dilatatæ, ad apicem late rotundatæ; tarsi tenues, articulo 1^{mo} elongato, 2—4 gradatim brevioribus, 4^{to} vix dilatato.

This genus differs from Fornax, by the third joint of the antennæ being not larger than the 2d or 4th; and by the posterior coxal plates being less dilated interiorly, much more broadly rounded at apex; the fourth tarsal joint is less dilated.

1. I. spretus, elongatus utrinque obtusus, ater, breviter cinereo-pubescens, confertim subconfluenter punctatis, thorace convexo, antrorsum angustato, et rotundato, elytris striis tenuibus, interstitiis rugose punctatis, subconvexis, antennis pedibusque rufis. Long. ·2. Lake Superior. This is the *Fornax spretus* of my catalogue in Agassiz' Lake Superior.

EUCNEMIS Ahr.

a. *Antennæ serratæ: tarsi articulo 4^{to} simplici.*

1. E. clypeatus Say, Trans. Am. Phil. Soc. 6, 189: *Elater clypeatus* Say, Ann. Lyc. 1, 266. Pennsylvania, Zimmerman.

b. *Antennæ pectinatæ: tarsi articulo 4^{to} breviter lobato.*

2. E. amænicornis Say, Trans. Am. Phil. Soc. 6, 189. Southern and Middle States. The antennæ are subflabellate in both sexes: some specimens have the thorax a little rounded on the sides: these are probably females: the whole appearance is so similar to that of genuine Eucnemis, that I have not ventured to establish a separate genus upon the slight difference in the antennæ and tarsi.

MICRORHAGUS Esch.

1. M. imperfectus, elongatus, utrinque obtusus, ater pubescens, punctatus, capite canaliculato, thorace latitudine breviore, lateribus antice rotundatis, elytris tenuiter striatis, pedibus rufo-piceis, sulcis pectoralibus postice indistinctis. Long. ·22. New York, one female.

2. M. subsinuatus, elongatus vix cuneiformis, ater, supra obsolete pubescens, punctatus, thorace brevi, antrorsum subangustato, lateribus subsinuatis, angulis posticis explanatis, elytris rugose punctatis, obsolete striatis, tarsis testaceis. Long. ·2. Georgia, one male; similar to the next, but more than twice as large, and easily distinguished by the sinuosity of the sides of the thorax: it is also more coarsely punctured and less narrowed behind.

3. M. triangularis. *Elater triangularis* Say, Journ. Ac. Nat. Sc. 3, 170: *Eucnemis triangularis* Say, Trans. Am. Phil. Soc. 6, 189. Southern and Western States: the thorax is not at all narrowed in front; the anterior angles are a little rounded. It is singular that Guérin, (Ann. Ent. Soc. Fr. 1, 187,) should refer this species to Eucnemis, when Say expressly states the antennal groove to be near the middle of the pectus.

4. M. humeralis. Eucnemis humeralis, Say, Trans. Am. Phil. Soc. 6, 189. Pennsylvania, Dr. Melsheimer.

GALBA Esch.

1. G. (Dendrocharis) flavicornis Guérin. Ann. Ent. Soc. Fr. 2d ser. 1, 193. tab. 6, fig. 60, 61. Georgia; I have never seen this fine species.

The following species are unknown to me, and the genera to which they belong doubtful.

Eucnemis quadricollis Say, Trans. Am. Phil. Soc. 6, 196. Probably Melasis.

Eucnemis frontosus Say, ibid. Probably not of this group.

Eucnemis calceatus Say, ibid. The description of the antennæ agrees perfectly with my Isarthrus spretus; but the 4th joint of the tarsi in that species is not lobed beneath.

Dirbagus rufipes Mels. Pr. Ac. Nat. Sc. 2, 150. The front is said to be longitudinally impressed, which is an unusual character in Fornax.

Eucnemis muscidus and unicolor, Say, Trans. Am. Phil. Soc. 6, 186. (*Elater* m. & u. An. Lyc. 1, 255,) are Perothops mucidus Erichson, Germ. Zeitsch. 3, 117. The genus Perothops is of difficult location. It cannot be placed in the present group on account of its prominent, not inflexed mouth. From the typical Elaters it differs by its clypeus dilated in front, and concealing the labrum, and by the absence of an anterior lobe on the prosternum. It seems most natural to consider it as a special group connecting Anelastes among the Eucnemidea, with the more typical Elaters.

[NOTE.—On p. 345 of the last number of this work, (Dec. 1851), the name puncticollis occurs twice in the genus Podabrus. The first of these (at the top of the page), should read Podabrus poricollis.]

The Committee on the Rev. Mr. Langstroth's paper on the "Impregnation of the Eggs of the Queen Bee," reported in favor of publication in the Proceedings.

On the Impregnation of the Eggs of the Queen Bee.

BY REV. LORENZO L. LANGSTROTH.

Many singular notions have prevailed respecting the generation of bees. Virgil[*] asserted that bees have no sexual intercourse, but gather young from the leaves of plants. New colonies, he thought, could be obtained from the carcasses of animals. Swammerdam, in his observations on bees, made in 1573, proved, by careful dissection, that the bee commonly called the King, is a female, and the mother of the whole colony, and that the drone is the male bee. He thought that a seminal atmosphere proceeded from the drones and caused the impregnation of the female, or as she is commonly called, the Queen.

Maraldi (1712) conjectured that the eggs of the Queen were fecundated by the drones after being laid in the cells. Arthur Dobbs (Philosophical Transactions, vol. 46 for 1760) was, I believe, the first who suggested that the Queen may have a spermatheca, from the contents of which the eggs are impregnated. Debraw (Phil. Transac. vol. 67 for 1777) imagined that he saw drones depositing semen in cells containing eggs. Both Huber and Dr. John Hunter have shown that he was mistaken. The latter supports the theory of Dobbs, and endeavors to strengthen it by some curious experiments which he made on the impregnation of the eggs of the silk-worm. (Phil. Transac. vol. 82 for 1792.) Hubert[†] (1788) was the first to demonstrate that the sexual union of the Queen and drone takes place when the insects are on the wing, in the open air; and that a Queen, when impregnated, will continue, at least for several years, to lay fertile eggs without any further intercourse with the male. He thought that she was impregnated for life, but he was not able even to conjecture how all the eggs in her ovary could be at once fecundated. Dzierzon, a German apiarian of great practical knowledge, has revived (1845) the notion of a permanently impregnated spermatheca. He says that he has dissected Queen bees both before and after impregnation, and that he has found the seminal sac in the first case to contain a limpid fluid like water, and in the second case to be filled with a substance resembling the semen of the drone. This would seem almost to settle the question; but unfortunately he advances a conjecture which seems to be at variance with the idea that he had much skill in dissecting. He thinks that what is the poison sac in the worker becomes the spermatheca sac in the

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[*] Aristotle informs us that some cultivators called the rulers or kings, mothers, and the drones, males.

[†] Hattorf and Schirach (1770) believed that the Queen was self-impregnated; and the latter accounted for the existence of males by conjecturing that their semen formed the food for the young bee.

Queen! Now, the poison sac, with the sting and all its appendages, is entirely distinct from the spermatheca, and can easily be recognized without the aid of the microscope. He does not seem to have examined, microscopically, the fluid in what he calls the seminal vesicle, in order to demonstrate, by the presence of spermatozoa, that it was the semen of the male. As I am not aware that this has been done by any one else, I hereby communicate to the Academy the results of such an examination made last month, by Dr. Joseph Leidy of this city.

The Queen dissected was taken from an observing hive in which she had been lodged in the Summer of 1851, having accompanied a first swarm from a hive which had been swarmed in 1850. I am certain that she was not a Queen of the current year, for she commenced ovi-depositing in the empty cells which the hive contained, the same day in which she was put into it; whereas young Queens, which are not impregnated until after they are established as heads of a new colony, do not begin to lay until after the lapse of several days. I know that she was the same Queen lodged by me in the hive, as the bees were in a hive of my own invention, in which they were exposed to the full light of day, and were under constant inspection. She was therefore nearly two years old. The males in this colony had all been killed in August, and there was not one in the hive (Jan. 27th) when she was taken from it.

Plate XIX in Swammerdam's History of Insects, represents very accurately all the parts which were particularly examined. The small globular vessel (fig. 3-t.) which Swammerdam thought secreted a mucous fluid to attend the eggs to the bottom of the cells, was found to be the true spermatheca. Its internal diameter was the 1-33d of an inch, and it was distended with a whitish, viscous fluid which, when examined by the microscope, was found to be filled with spermatozoa.

I consider, therefore, that this dissection *demonstrates* that the Queen bee has a reservoir in which the semen of the male is lodged, and that the eggs are impregnated as they pass by the duct leading from the sperma theca into the oviduct.

Note.—Since this paper was written, Dr. Leidy has examined two more Queen bees, each of which had the spermatheca distended with the spermatic fluid. These Queens were both reared last Summer from eggs in worker combs, which were furnished to colonies deprived of a Queen. The construction of the hives allowed the whole process to be distinctly seen.

Mr. Jacob Peirce exhibited a hybrid fowl, being a cross between the Peacock and Guinea Hen. The specimen was one of four which had been hatched and raised on the farm of Mr. David West, in Chester Co., between Kimberton and the Yellow Springs, Pa.

ELECTIONS.

Dr. Joseph Hopkinson, U. S. Navy, Mr. William Struthers, and Mr. J. Da Costa, of Philadelphia, were elected *Members;* and

Mr. J. W. Foster, U. S. Geologist of the Lake Superior District, and Mr. J. D. Whitney, of the same district, were elected *Correspondents* of the Academy.

March 2, 1852.

Vice President BRIDGES in the Chair.

Letters were read

From the Linnean Society of London, dated Jan. 22d, 1852, acknowledging the receipt of the Proceedings, Vol. 5, Nos. 9 and 10.

From the Smithsonian Institute, dated Washington, Feb. 17, 1852, acknowledging receipt of Proceedings, Vol. 5, No. 12.

From the American Philosophical Society, dated Feb. 21, 1852, acknowledging receipt of the Journal, Part 2, Vol. 2, new series, and of the Proceedings, Vol. 5, No. 12.

From Thomas Lawson, Surgeon General U. S. A. dated Feb. 7, 1852, requesting correction of an error in the Meteorological Register lately issued from the Department, a copy of which was sent to the Academy.

From Dr. Samuel Webber, dated Charlestown, N. Hampshire, Feb. 25, 1852, acknowledging receipt of his notice of election as a Correspondent.

Dr. J. C. Fisher read the following description of the Aurora of Thursday, Feb. 19th, 1852. The observations were made from an elevated point on the opposite side of the Schuylkill, where the view was entirely unobstructed.

On the night of Thursday, 19th of February last, a most beautiful Aurora was visible throughout the middle and northern parts of the United States. There were some circumstances connected with this one that seems to require a more particular description than usual. The air was calm and clear. The wind was light from the N. N. West. The temperature in the early part of the evening was about 25° F., but it fell very rapidly; and before morning it was 10° F. The Aurora began in the early part of the night with the appearance of a bank or arch of white light, rising about 15° or 16° above the horizon. This continued, with some few changes, to be its general character, till about 9 o'clock, when a series of remarkable and beautiful changes commenced, which, with some alternations of repose, lasted till the whole was lost in the dawn of day. A little after 10 o'clock it presented some of the most remarkable and beautiful changes it has ever been the good fortune of the writer to witness. The arch or bank of white light which formed the basis of the whole, appeared suddenly to rise and expand like a huge billow, or rather like one of those huge masses of foam at the bottom of the cataract of Niagara, until suddenly bursting, it threw a vast volume of white spray to the zenith, where it changed to a fiery red, giving rise to an alarm of fire. Instantly after, streamers of red, white and brown shot up from the broken arch that still formed the basis or ground work, and which at the same time changed from its white color to at first a pale green, and then to almost an emerald green. Soon after, the streamers ceased, and waves of parti-colored light rushed across the heavens from west to east, as if in rapid pursuit of one another. This was soon succeeded by masses of light shooting up from the arch, which was again formed, to the zenith. Some of those masses presented a remarkably livid apearance, and the whole formed a picture which it is not in the power of language fairly to describe. During the time when the auroral changes were so brilliant, the electrical state of the atmosphere was in a most singularly disturbed condition. The telegraph wires were so highly charged and conducted so great a quantity, that there were divers and sundry rather unreadable communications written down at the various stations throughout the country, thus establishing its electrical character beyond question. Several persons have said that during the same time they distinctly heard a snapping and cracking noise like that made by an electrical machine when in a powerfully excited condition. This, however, may need confirmation. The photometric power of the aurora when most brilliant, was about equal to that of the moon in a very clear sky, when about three days old. No means were had by the writer of examining the magnetic changes and disturbances. These, however, have been probably carefully noted by accurate observers. [illegible] all the phenomena noticed, however, the conclusion is a fair one that this [illegible] was caused by a highly disturbed condition of the electrical tension of the [illegible] owing principally to calorific causes, and that however high it might have extended into the atmosphere, it undoubtedly rested upon the earth, and that in our immediate vicinity.

Dr. Leidy called the attention of the members to a specimen of the body of a cervical vertebra, from the Eocene formation of Ouachita, Louisiana, belonging to the cabinet of the Academy. It is perfectly mineralized, and both epiphyses are attached, but portions are broken away, permitting the characteristic tuberculated surface of the body to be seen. It very probably belonged to a cetacean animal, and is remarkable on account of the relatively deep concavity of its surfaces before and behind. For the animal to which the vertebra belonged, the name Pontogeneus priscus was proposed.

Dr. Leidy further made some remarks upon the comparative osteology and dentition of the Hippopotamus, and proposed to consider the small species, H. Liberiensis, *Morton*, as belonging to a new genus of Hippopotamidæ, under the name of Chœrodes.

Mr. Lea called the attention to a specimen of Dipsas plicatus, *Leach*, which was very remarkable for its size. It was a single valve, and measured in length 6¾ inches, and in breadth 10½ inches. Its weight was 10½ ounces. The heaviest specimen of a *Unio* known to Mr. Lea weighed two pounds ten ounces.

Mr. Lea also exhibited some specimens of Uniones, which are apparently hybrid, but in reality not so, the discrepancy arising from accidental causes.

March 9th.

Mr. ISAAC LEA in the Chair.

Dr. Charles M. Wetherill read a paper intended for publication in the Proceedings, entitled "Examination of Molybdate of Lead from the Wheatly Mine near Phœnixville, Pennsylvania," which was referred to Mr. Ashmead, Mr. Vaux and Dr. Rand.

Mr. Lea read a "Description of a new species of Symphynote Unio," which being intended for publication, was referred to Dr. Leidy, Dr. Ruschenberger and Dr. Bridges.

A letter was read from Amory Edwards, Esq., dated New York, March 3d, 1852, accompanying the donation of the heads of two Gentoo Indians received this evening, of which the following is an extract:

"The Gentoo tribe of Indians inhabit the sources of the Purus river, a Southern tributary of the Amazon. The marshy banks of this river render it so very unhealthy that very little is known of its inhabitants. At intervals a half-breed trader will venture up from the town of Barra, at the junction of the Amazon and Negro rivers, who may be able to procure a very small quantity of Balsam de Copaiba, or some gums. These traders report this tribe as inoffensive, living on fish and fruits, entirely without clothing, and killing animals with a blow gun and poisoned arrows.

The owner of one of these heads carried it with him, and when fishing, had it placed [illegible] the face towards him, "for luck's sake," and it is extremely rare to [illegible] them to part with one.

These are the only ones I have ever met with from this river; those in the collection of the late Dr. Morton, presented by me, were of the tribe of Mundrucus, living between the Tapajos and Madeira rivers, and one is, I think, figured in the works of Spix and Von Martius."

March 16*th.*

MR. ORD, President, in the Chair.

Letters were read

From the Librarian of the British Museum, dated Feb. 24, 1852, acknowledging the receipt of the Proceedings, Vol. 5, No. 11.

From the Faculty of Harvard College, dated Cambridge, Feb. 27, 1852, acknowledging the receipt of a copy of the Memoir of Dr. Morton by Dr. Meigs.

Dr. Leidy called the attention of the members to five heads lying upon the table, of what were usually considered as belonging to a single species of Hippopotamus, under the name of H. amphibius. Two of the specimens are from North Western Africa, and three from Southern Africa. Between those of the two localities, various differences were pointed out, the most important being the existence of a single band of enamel upon the upper canines of the North Western Hippopotamus, and the band being divided into two by a space of three lines on the outer side of the posterior groove in the Southern Hippopotamus. Dr. L. therefore concluded with Desmoulins and Duvernoy, that there were two distinct species of Hippopotamus, and as that of Northern Africa was the earliest known, the name, H. amphibius should be retained for it, while that of the South should retain Desmoulin's name of H. capensis.

Dr. Le Conte mentioned that the specimens of Casteroides Ohioensis presented this evening, were important, as giving a new locality to this animal. They were obtained by Dr. Feuchtwanger from a well near Shawneetown, forty feet below the surface.

Dr. Hays stated that the tooth of the fossil Tapir presented by him this evening, was found in the bed of a canal in North Carolina. It had been in his possession for several years, and was the first fossil Tapir tooth found in North America.

March 23*d.*

Vice-President BRIDGES in the Chair.

Dr. Leidy called attention to the very fine skeleton of Troglodytes gorilla, recently presented to the Academy by Dr. Henry A. Ford, of Liberia, which is now mounted and in the Hall. The height, as it now stands, is four feet nine inches.

Mr. Lea made some remarks on the subject of the periodicity of the Family *Unionidæ*. He mentioned that some of the species matured and ejected from their oviducts the perfect shell in the autumn, others in the spring, and some apparently in the winter. He mentioned that few observations had yet been made on this interesting branch of animal economy. He had [illegible] made some observations many years since on the *Uniones* and *Anodontæ* [illegible] vicinity; and his brother, T. G. Lea, had, at his request, made some intere[illegible]tions of those in the vicinity of Cincinnati, part of which had been no[illegible] Transactions of the American Philosophical Society. He then read part [illegible] letter from Mr. Joseph Clark of Cincinnati, in which he mentions having [illegible]served the periodicity of several species within the last six months. The *Anodonta edentula*, Say, was found with oviducts fully charged in September, as were also *Unio ellipsis*, Lea, *U. irroratus*, Lea, *U. securis*, Lea, *U. foliatus*, Hild. and *U. orbiculatus*, Hild. In October he found the ova of the *Unio multiplicatus*, Lea, more than half developed, and thinks they would have been matured in the spring. In the *Unio anodontoides*, Lea, they were beautifully developed, and would probably have been matured and voided in the winter. The oviducts of the last species are bordered with a beautiful blue color.

Thus Mr. Clark's conclusions were the same as to the different periods of various species as Mr. Lea's, and there cannot be a doubt but that the terms of the species differ according to their own law.

March 30th.

Vice-President BRIDGES in the Chair.

The Committee on Mr. Lea's description of a new Unio, reported in favor of publication in the Proceedings.

Description of a new species of Symphynote Unio.

BY ISAAC LEA.

UNIO CUMINGII. Testa alatâ, plicatâ, triangulari, valdè compressâ, posticè angulatâ, valdè inæquilaterali; alâ elevatâ, acuminatâ, margine crenulatâ; valvulis subtenuibus, antè et post nates connatis; natibus, et alæ posterioris basi apiceque undulatis; natibus compressis, ad apicem undulatis, haud prominentibus; epidermide nitidâ, tenebroso viridi, perradiatâ; dentibus cardinalibus lamellatis, lateralibus longissimis, lamellatis subcurvisque; ligamento celato; margaritâ albâ et iridescente.

Shell alate, plicate, triangular, very much compressed, angular behind, very inequilateral; wing high, acuminate, crenulate on the margin; valves rather thin, connate before and behind the beak; beaks, and the base and summit of the posterior wing, undulated; beaks compressed, undulated at the tip, not prominent; epidermis shining, dark green, radiated all over; cardinal teeth lamellar; lateral teeth very long, lamellar and somewhat curved; ligament concealed; nacre white and iridescent.

Habitat northern part of China. H. Cuming, Esq.

Diam. .7, length 2.6, breadth 3.1 inches.

This very beautiful and rare *Unio* is, in form and general outline, very much like the *Dipsas plicatus*, Leach, but they cannot be confounded with each other, as they belong to very distinct genera, the *Dipsas* having but one linear tooth in each valve, while the above described shell has perfectly well defined lamellar cardinal teeth, double in the right and single in the left valve. It also has long, lamellar, lateral teeth, double in the left and single in the right valve. It differs also in the folds, having them extending over the flattened side from the beaks, in this specimen, which is not half grown, to half the length of the shell. The folds on the wing also differ, the *Cumingii* having the row from the beak to the posterior margin much nearer to the umbonial slope. The folds in the superior part of the wing are smaller. This shell is very much compressed at the beaks and reminds one of the *Margaritana complanata* (nobis).

Mr. Cuming informs me that he has received several specimens from the northern part of China, and that the full grown ones are 5½ inches by 6½ inches. I dedicate the species to my friend, Mr. Cuming, to whose kindness I owe the possession of my specimen.

The Committee on the following paper of Dr. C. M. Wetherill, reported in favor of publication in the Proceedings :

Examination of Molybdate of Lead, from Wheatley's Mine, near Phœnixville, Chester County, Pennsylvania.

BY CHARLES M. WETHERILL, Ph. D.

The mineral was given to me by Mr. W. S. Vaux, who received it from Mr. Wheatley. It was found at his mine near Phœnixville, Chester County, Pa. The Molybdate occurs with Phosphate of Lead. The crystals (square tables modified,) are of a *light red* color. Lustre adamantine, translucent, streak white. Before the blow-pipe on charcoal decrepitates, and fuses with reduction of lead. On platinum wire with borax in the outer flame is dissolved to a transparent glass, yellow while hot, colorless on cooling ; in the inner flame, the bead becomes deep brown when cool. In salt of phosphorus in the outer flame, the same reaction occurs as with borax ; in the inner flame the green color characteristic of Molybdena appears. It dissolves almost completely in nitric acid, and in hydrochloric with a residue of chloride of lead ; these solutions are yellow. Hardness between selenite and calc spar, or between two and three of Mohs' scale. Density ascertained with one gramme of the crystals 5·6.

A portion of the crystals was analyzed in the moist way by dissolving in boiling dilute hydrochloric acid, and separating the crystals of chloride of lead, which form on cooling. These crystals were not completely soluble in boiling water, but left a residue in small quantity, apparently silica. The solution filtered from the chloride of lead, treated with sulphuretted hydrogen, gave a dark brown precipitate, composed of the sulphurets of lead and molybdenum, the latter was dissolved from the lead by hydrosulphuret of ammonia. The filtrate from the sulph. hydrogen precipitate contained a trace of iron.

I was not able to detect chromium either by the moist way or before the blowpipe. The earths and alkaline earths were also absent.

I am not aware that a red molybdate of lead of American locality has been described.

The following resolution was unanimously adopted :

Resolved, That a copy of the Proceedings, as far as published, be presented to Dr. Henry A. Ford, of Liberia, Africa, in return for his recent valuable contributions to the Academy, from that country.

Dr. Elwyn offered the following, which was adopted :

Resolved, That a Committee be appointed to communicate with Commodore Perry, in relation to making collections of objects of Natural History in India by the U. S. Expedition, which is to sail shortly for that station.

Committee—Mr. Cassin, Dr. Ruschenberger and Dr. Elwyn.

ELECTION.

Amory Edwards, Esq., of New York, and Charles H. Budd, M.D., of Pemberton, N. J., were elected *Members*, and Henry A. Ford, M.D., of Liberia, Western Africa, was elected a *Correspondent* of the Academy.

April 6th.

Vice-President BRIDGES in the Chair.

Letters were read

From the Royal Academy of Sciences at Vienna, dated October 26, and December 12, 1851, transmitting the "Denkschriften, Mathematische-Naturwissen, Classe," vol. 3, part 1, and "Sitzungsbericht, Mathemat. Naturwissen. Classe," vol. 6, and vol 7, parts 1 and 2.

From Dr. F. H. Troschel, dated Bonn, Jan. 16, 1852, acknowledging receipt of Proceedings of the Academy, vol. 5, Nos. 3, 4, 6, 7 and 8, and requesting other numbers deficient in his series; also transmitting "Archiv für Naturgeschichte," No. 6, 1849, Nos. 2, 3, 4 and 5, 1850, and Nos. 1, 2, 3, 1851.

From the Royal Academy of Sciences of Naples, dated Jan. 24, 1852, acknowledging the receipt of late Nos. of the Proceedings.

A paper was presented to Col. George A. McCall, intended for publication in the Proceedings, describing a new species of Carpodacus. Referred to Mr. Cassin, Dr. Woodhouse and Dr. LeConte.

Dr. Woodhouse read a paper, intended for publication in the Proceedings, entitled, "Description of new species of Birds of the genera Vireo, *Vieill*, and Zonotrichia, *Swain.*," collected by the author in Texas, while attached to the late U. S. Expedition under Captain L. Sitgreaves, for exploring the Zuni and Colorado Rivers of the West. Referred to Col. McCall, Mr. Cassin and Dr. Wilson.

Dr. Le Conte offered the following additional remarks on some fossil Pachyderms, from Illinois, referred to on page 3 of the present volume.

Having recently had an opportunity of inspecting an entire skull in the possession of Dr. Leidy, closely allied to, if not identical with the cranium described by me as Hyops, and afterwards as Dycotyles depressifrons, I have the satisfaction of being able to arrange this confusing mixture of bones in a natural manner. I have seen distinctly that the parts described as belonging to the upper jaw of Platygonus compressus, in reality belong to Hyops, but that the singularly dilated lower jaw associated with them, is part of another animal for which the name Platygonus must be retained. The large inferior canine referred to Dicotyles depressifrons is perhaps the canine of the genus with dilated jaw; at any rate, it cannot belong to Hyops, and until the canine of Platygonus is found in situ, it would be more natural to consider it as not indicating a third animal, of which no other trace remains.

The inferior molars and canine from another locality, on which the genus Protochœrus was founded also belong to Hyops. In palliation of this blunder, I may say, that the cranium and superior canines and molars of Hyops were associated with no lower teeth except those in the fragment of dilated jaw, which certainly seemed to accord very closely in size and shape with the upper jaw. Any one who has observed the very close correspondence between the dentition of suiline pachyderms, and the great variation in different portions of the dental series, will appreciate the difficulty of apportioning properly small fragments of closely allied species, and will excuse the faults which I have unconsciously committed. As the best reparation for these errors, I subjoin the following synonyms of the fragments of the head, described by me:

Hyops depressifrons Lec. Am. Journal of Sc. 2d series, 5, 103.
Dicotyles depressifrons Lec. Proc. Ac. Nat. Sci. 6, 3.
(In part.) *Platygonus compressus* Lec. Am. Journal, l. c. and Trans. Am. Ac. Arts, N. ser. 3, p. 1, 2, 3.
Protochœrus prismaticus Lec. Am. Journal, l. c. 5, 103: Proc. Ac. 6, 5.

The fragments to be here referred, are a cranium: fragments of anterior part of head with premolars and canines; the entire dental series of upper jaw: except the last molar; the canine and two inferior molars of lower jaw, the latter belonging to a smaller specimen of perhaps another species.

Platygonus compressus Lec. Am. Journ. l. c. and Trans. Am. Ac. Arts.
Lower jaw with two posterior molars: pl. 3, fig. 7.
Upper teeth,* posterior molar and two premolars: pl. 3, fig. 12 and 13, (left hand.)

Mr. Lea stated some of his views regarding species, and mentioned that the subject had engaged the attention of eminent naturalists, some of whom had given definitions, which did not fulfil his idea of what constituted that term. Lindley, in his Introduction to Botany, has given some very judicious and philosophic views on classification. "Species," he says, "are created by Nature herself, and remain always the same in whatever manner they may be combined; they form the basis of all classification, and are the only part of it which can be considered absolute." In this he makes no attempt to define his ideas of species. It is assumed to be a distinct creation and unchangeable.

MM. Ray and Drouet ("*Revue et Mag. de Zoologie*, 1849") give their views of what forms a species, in the following terms: "Generalement on entend, par ce mot, (espéce) un type d'organization de forme et d'activité, rigoureusement déterminé, qui se perpétue successivement par génératiốn directe et d'une manière indéfinie avec la meme constance de caractères."

Milne Edwards' definition of species, Mr. Lea thought was less clear. He says, "On donne le nom d'espèce à la reunion des individus, que se reproduisent entre eux avec les memes propriétes essentielles."

Cuvier considered that the fact of the succession, and of the constant succession, constituted alone the validity of the species.

Dr. Morton comprised his view of species, as "a primordial organic form."

Neither of these definitions fulfil Mr. Lea's idea of what forms a species. It seemed to him, that a species must be considered to be a *primary established law*, stamped with a persistent form pertaining solely to itself, with the power of successively reproducing the *same form* and none other.

Mr. Lea also stated he was about to issue a new edition of his *Synopsis of the Family Naiades*, with much additional matter. That in the introductory part, he had given the classification of various zoologists, and among others those who had divided the *Naiades* by their anatomical differences, viz: D'Orbigny, Troschel, and Agassiz. In this he said it would be observed, by consulting the works of the two first, and a work entitled "Shells of New England," by Mr.

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* The figures of these teeth were so badly drawn by the artist engaged by me, and still farther deteriorated and altered while in the hands of Mr. Endicott, that the minute differences which distinguish such closely allied animals are not to be seen: in excuse for permitting such figures to go before the world, I must say that the memoir was printed during my absence on a scientific expedition, and that no opportunity was offered for correcting the proof.

W. Stimpson, who cites Prof. Agassiz's MSS., that they do not differ essentially in their modes of division. Mr. Lea farther remarked that our knowledge of the structural differences of the soft parts of these animals, he thought, was not sufficiently advanced to found a perfect and permanent system. That such a one would be instituted he had no doubt, as he had expressed himself in 1838, in a note on *Anodonta Blainvilliana*, in the second edition of his Synopsis, p. 31, and he trusted, that the able physiologists above cited would continue their investigations; but he was disposed to think that, until zoologists had examined carefully the soft parts of most of the existing numerous species,—the exo-skeletons* (so to call them) of which have only come under our notice—the facilities which a good system ought to afford, cannot be reaped by a partial anatomical knowledge, which does not now embrace probably one eighth of the ascertained species of the family. Besides he was not at all disposed to think, that we can entirely dispense with the aid we find in the various characters of the exo skeletons in making out subgroups. They often, indeed, afford striking and obvious differences, which the eye schooled with but little experience, can with facility and certainty detect, and which if happily grouped by an experienced eye may greatly aid the student. These considerations had induced him still to retain nearly the same divisions in the new edition of the Synopsis, which had been used in the last one.

April 13th.

Vice-President BRIDGES in the Chair.

Letters were read

From the Lyceum of Natural History; of New York, dated March 24, 1852, acknowledging the receipt of a copy of the "Notice of the Academy," recently published.

From Commodore Perry, dated New York, April 9, 1852, addressed to Dr. Ruschenberger, expressing his desire and intention to comply with the request of the Academy to make scientific researches in the East Indies, during the cruise of the U. S. Squadron on that station.

Dr. Le Conte read a paper entitled, "Remarks on some Coleopterous Insects, collected by S. W. Woodhouse, M. D., in Arkansas and New Mexico," which was referred to Dr. Leidy, Dr. F. Beck, and Dr. Ruschenberger.

Dr. Zantzinger presented a paper from Mr. Charles Girard, of Washington, entitled, "Observations on the North American Astaci, by Charles Girard;" which being intended for publication, was referred to Dr. Bridges, Dr. Le Conte and Dr. Leidy.

Dr. Hallowell read a paper describing new species of Reptilia from Western Africa; which was referred to Dr. Woodhouse, Dr. Le Conte and Mr. Lea.

Mr. Lea read a note from Wm. H. Prescott, Esq., dated Boston, April 8, 1852, accompanying his donation of the rare work "Registro trimestre," announced this evening.

On motion of Mr. Lea, the thanks of the Society were unanimously presented to Major Le Conte for the valuable donation announced this evening, of his entire herbarium of North American Plants.

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* Forming the calcareous coverings and fulcra for muscular fibres, as well as protection from exterior forces.

April 20th.

Vice-President BRIDGES in the Chair.

Letters were read

From Capt. Wm. McCluney, U. S. N., addressed to Dr. Ruschenberger, dated New York Navy Yard, April 17th, 1852, offering to further the objects of the Academy, during the cruise of the U. S. Squadron on the E. India station.

From the Royal Academy of Sciences of Brussels, dated January 10th, 1850, and March 18th, 1851, acknowledging the receipt of the Journal Part 4, Vol. 1, and Part 1, Vol. 2.

Dr. Leidy read a paper entitled "Characteristics of some new Reptiles in the Museum of the Smithsonian Institution, by Spencer F. Baird and Charles Girard;" which, being intended for publication in the Proceedings, was referred to a Committee consisting of Dr. Hallowell, Dr. Le Conte and Dr. Leidy.

Dr. Leidy also presented a paper from Prof. Dana, being a continuation of his description of the Crustacea of the Exploring Expedition; which was referred to the original Committee.

Dr. Leidy read also a paper "On the Osteology of the Head of the Hippopotamus and a Description of the Osteological Characters of a New Genus of Hippopotamidæ," which being intended for publication in the Journal, was referred to Dr. Ruschenberger, Dr. Woodhouse and Dr. Hallowell.

Dr. Leidy stated that he had been studying the characters of the fossil tortoises from Nebraska Territory, and had come to the conclusion that they had been terrestrial and not aquatic in their habits, and belonged to the genus Testudo. In all, the penultimate vertebral plate is inverted V formed, enclosing with the pygal plate the last vertebral plate; the costal plates are alternately broad and narrow; and in those specimens in which the marks of the pygal scute remains, it is undivided, as in the recent Testudo. The names of those species described recently should be changed as follows:

TESTUDO NEBRASCENSIS, *Leidy*.
  Stylemys Nebrascensis, Pr. A. N. S., v. 173.
TESTUDO HEMISPHERICA, *Leidy*.
  Emys hemispherica, ib.
TESTUDO OWENI, *Leidy*.
  Emys Oweni, ib. 327.
TESTUDO CULBERTSONII, *Leidy*.
  Emys Culbertsonii, ib. vi. 34.

Dr. L. also called the attention of the members to a specimen of "Red Snow" Protococcus nivalis, beneath the microscope, which was brought by Dr. E. K. Kane, U. S. N., from the Arctic region. It consists of simple, spherical vesicles, with a transparent, colorless, shining cell wall, and bright red, granular contents. The vesicles or cells measure from the 1-1750th to the 1-777th of an inch in diameter.

April 27th.

Vice-President BRIDGES in the Chair.

The Committee on the following paper by Dr. Woodhouse, reported in favor of publication in the Proceedings.

Descriptions of new species of Birds of the genera Vireo, Vieill., and Zonotrichia, Swains.

BY S. W. WOODHOUSE, M. D.

The specimens described in the present paper were procured by me in Texas, whilst attached to the expedition under the command of Captain L. Sitgreaves, Topographical Engineer U. S. Army, which explored the rivers Zuni and Colorado of the West.

Vireo atricapilla, nobis.

Form. Robust, wings short and slightly rounded, first quill short, third longest; tail extending about one inch beyond the closed wings.

Dimensions.—Total length, 4 5-10, extent of wings, 7½, from flexure, 2 1-10, length of tail 1 6-10 inches.

Colors. Head above black, which color extends over the cheeks and ears to the base of the lower mandible; a white ring encircles the eye, and then forms a broad band extending to the nares. The plumage of the back is dark olive green, slightly tipped with black, and gradually becoming lighter over the rump and tail-coverts. Wings and tail dark brown, inclining to black, with their outer margin light olive; greater and lesser wing-coverts broadly tipped with dingy white.

The primaries have a white line extending along their inner edge. Throat, belly, and feet white. Sides very light yellow. Iris bright red. Bill, tarsi and feet, black.

Habitat. Western Texas.

Obs. I procured this bird on the 26th of May, 1851, on the Rio San Pedro, two hundred and eight miles from San Antonio, on the road leading from that place to El Paso del Norte.

I was first attracted by its singular note, which I am unable to imitate. It was feeding in the dense cedars, and resembles in its habits our Sylvias, being continually in motion, which rendered it rather difficult to shoot. I procured two specimens, both of which, on dissection, proved to be males.

Zonotrichia Cassinii, nobis.

Form. Bill slender and conical, with a well marked ridge between the nostrils, extending about half way down the bill; wings short and rounded, first quill shortest, third and fourth about equal. Tail long and rounded.

Dimensions. Total length of skin from tip of bill to end of tail 5 5-10 inches, wing from flexure 2 6-10 inches. Tail extending beyond the closed wings about 1 5-10 inches. Total length, 2 5-10 inches. Bill along the ridge 5½-10 inches, From gap to tip 5-10 inch; tarsus 1½-10 inches.

Colors. Head and back cinereous brown; throat and breast very light cinereous brown; sides light brown, with longitudinal brown stripes next the shafts, and at their extremities and the surrounding portions of the feather, brownish white. Belly and vent dingy white, a strip of dingy white extending from the base of the upper mandible, over and behind the eye. Primaries brown, with their outer edges light brown; secondary and scapulars brown, with a whiteened band encircling them; wing at the flexure light yellow; the tail, with the exception of the two middle feathers, brown, tipped with white, the middle feathers light brown and slightly barred; in the outer feathers the white extends from the shaft along the outer side; upper mandible light brown, lower light yellow. Tarsus and feet flesh colored; iris dark brown.

Habitat. Western Texas.

Obs. This interesting bird I shot on the prairie near San Antonio, on the 25th of April, 1851, and, at the time, took it for the Z. savannah (Wilson,) which it much resembled in its habits, but upon examination it proved to be totally distinct. I found but one specimen, which is a male.

I have named this in honor of my friend Mr. John Cassin, the Corresponding Secretary of the Society, to whose indefatigable labor in the department of Ornithology we are so much indebted.

The Committee to which was referred the following paper by Col. McCall, reported in favor of publication in the Proceedings.

Note on Carpodacus frontalis, (Say,) with description of a new species of the same genus, from Santa Fe, New Mexico.

By Col. George A. McCall, U. S. A.

In the Proceedings of this Academy for the months of May and June, 1851, was published some account of such Birds as I had met with during the preceding year in Texas and New Mexico. In that paper, under the name of *Carpodacus frontalis, Say*, I gave an account of the habits of a bird I had found at Santa Fé.

At the time I first observed the bird to which I allude, I believed it to be of a species not previously described, and I brought with me from New Mexico specimens of the adult birds, the young, the nest and the eggs. But on my arrival in this city, a comparison with *C. frontalis* resulted in the decision that my specimens were of that species; they were accordingly presented to the Academy as such, together with an account of their habits. Recently, however, my attention has been called to these birds (a close examination of them having been made by Dr. Wilson and Mr. Cassin) and a satisfactory conclusion has been arrived at, that the birds referred to do not belong to the species *frontalis*, but are of a species not previously described; I therefore propose the name *familiaris*, and annex hereto an accurate description which was taken from an examination of a number of specimens, killed at Santa Fé in the Spring of 1850.

*Carpodacus familiaris.**

Adult male.—Front, sides of head, chin, throat and rump, crimson; crown, hind-neck and fore part of back, brownish crimson passing into brown on the after part of the back; fore part of the breast brownish crimson fading into light dusky brown on the abdomen, which, with the under tail coverts, is striped with blackish brown; wings and tail, dusky brown, each feather edged with pale brown, which is broadest on the wing coverts; bill robust and curved on the ridge, and together with the legs and feet dark dusky; iris black. Length, six inches one line, alar extent ten inches; wing from the flexure three and a quarter inches.

The female, (in size rather less than the male,) is above, of a dusky brown edged with light brown; beneath, pale brown longitudinally striped with dark brown; wings and tail dusky, edged with pale brown. The young on the first of May were nearly full fledged, and were similar in color to the female, though lighter.

It will be seen from the foregoing description that the present species differs from *C. frontalis* in having the crimson less decidedly defined—that color being diffused over a greater part of the body, and gradually fading into brown.

The Committee on Dr. Hallowell's paper describing new species of Reptiles, reported in favor of publication in the Proceedings.

Description of new species of Reptilia from Western Africa.

By Edward Hallowell, M. D.

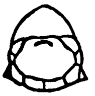
PHRACTOGONUS,* *Hallowell.*

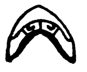
Subgeneric Characters.—Head conical, presenting two large plates upon its upper surface. Nostrils below the rostral. A row of longitudinal shields upon the chest. Body and tail annulated; lateral pores near the anus.

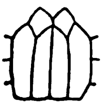
Phractogonus *galeatus.*

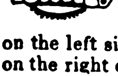
Specific Characters.—Five teeth in the lower jaw on each side; four maxillary on each side of the upper jaw, and two intermaxillary teeth; two large plates upon the head; lateral pores near the anus; pectoral shields four in number, long and narrow; two hundred and fourteen rings upon the body, eighteen upon the tail.

Description.—The head is small and somewhat triangular, rounded in front. It presents upon its upper surface two large plates, one of which forms the rostral. The posterior of these is much the larger, and is more extended transversely than its antero-posterior diameter. It presents three distinct margins anteriorly, its posterior margin being somewhat rounded; its superior surface is convex. The rostral is rounded anteriorly, depressed above; its anterior margin presents an acute edge. The snout extends nearly a line beyond the mouth. In an angle formed by the plates just described, on each side of the head, is one which is narrow and oblong; and immediately behind it another very small and quadrilateral; behind this at the angle of the mouth is a triangular plate, its base presenting backward; between them at the posterior part of the head are four narrow and more or less oblong and two smaller ones. The nostrils are quite small, V shaped, a line apart, and are situated upon the under part of the snout, in a narrow plate immediately behind the rostral. The eyes are not visible. Five labial plates margin the upper jaw on each side. There are three upon the margin of the lower jaw, the posterior of which is very large and quadrilateral. The mental plate is also large, with a rounded posterior margin. The pectoral shields are four in number, the two middle ones by their junction forming a triangle superiorly. They are each about three lines and three-fourths in length, and a line in breadth. The two lateral shields, which are pentagonal, have their bases precisely in a line with those of the intermediate plates. Immediately above the two middle pectoral are two small quadrilateral ones about a line in breadth; their external and inferior margin is in contact with the superior and internal margin of the long and narrow external pectoral shields. There are nine semicircular rings upon the upper part of the body terminating at the base of the pectoral plates. There are 214 rings upon the body and 18 upon the tail. Body slender, cylindrical, fifteen lines in circumference at its middle, of an obscure white color; (the specimen has been preserved in alcohol). The back of the animal is covered with numerous small quadrangular scuta, looking like mosaic; they are wider apart upon the abdomen, which has a smooth appearance. No longitudinal sulci are observed upon the body. There are two lateral pores quite distinct, each in a separate scale on the left side of the row of præanal scales, and one near the centre of a scale on the right of the same row. The scales in front of the anus are six in number, the two middle ones oblong and quadrilateral, the lateral ones irregular in shape.









Dimensions.—Length of head 4½ lines, of neck and body 13 inches (Fr.) 10 lines, of tail 15½ lines.

Geographical distribution.—Liberia, West Coast of Africa.

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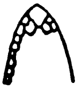
*Φρακτος munitus, γωνος angulus.

Habits.—But little is known of the habits of this animal. They probably resemble those of the Amphisbænidæ.

General Remarks.—But three species of Lepidosternon are described by Dumeril and Bibron in their Erpétologie Générale, viz., Lep. microcephalum, L. phocæna, and L. scutigerum. From the microcephalum, the species upon which the Genus was founded by Spix, galeatus differs in the form and number of the pectoral shields, the number of plates upon the head, and in being a much more slender animal. Lepidosternon phocæna presents twelve plates upon the head, and the pectoral shields are small and lozenge shaped. The resemblance between the animal just described and the L. scutigerum, the Cephalopeltis Cuvieri of Muller, is more close, but it differs from it in several well marked particulars, viz., the position of the nostrils, which in all the species described by Dumeril and Bibron are stated to be in the rostral plate. They are distinctly so drawn in the figure of the L. microcephalum of Spix, in his work on the serpents of Brazil. In L. galeatus the nostrils are situated in a plate immediately below the rostral. It differs also in having lateral anal pores, which are not mentioned as existing in either of the described species of Lepidosternon, and in the number of rings upon the body and tail. These are stated by Dumeril and Bibron to be three hundred and fourteen for the body and fourteen or fifteen for the tail. The L. scutigerum is therefore a much longer animal, measuring 18¾ inches. All the species of Lepidosternon hitherto described are from South America.

The reptile most nearly resembling the above described animal is undoubtedly the Monaspis capensis of Dr. Andrew Smith, (Illustrations of the Zoology of South Africa. Reptilia, pl. 67.) The nostrils in the plate of Dr. Smith are placed as in Phractogonus, but no mention is made of his description of lateral anal pores. The number of rings upon the body is 206, of the tail 7. The preanal scale is divided as in L. galeatus into six compartments, and the pectoral shields are the same in number but differ in shape. The head, however, has but a single plate or shield, and hence the name Monaspis, which cannot with propriety be applied to an animal with two. I therefore prefer the name Phractogonus. The greater or less number of plates upon the head may, as Dr. Smith observes, be of specific importance only, but the position of the nostrils and the presence of lateral anal pores are characters of sufficient value to warrant the establishment of a subgenus.

HEMIDACTYLUS *angulatus.*



Specific Characters.—Upper part of body covered with tubercles, disposed in oblique parallel rows converging toward the middle line of the back. A large triangular plate under the chin. Tail of same length as head and body. Tail subquadrangular at its base, tapering gradually towards a point.

Description.—The head of this animal is of moderate size, flattened above, somewhat swollen at the temples. The snout is triangular, depressed above, the nostrils which are small and circular being placed nearly a line apart about half a line above the opening of the mouth. There is a row of nine or ten plates upon each side of the upper jaw; of these the two or three nearest the snout appear to be the largest. The same number exists upon each side of the lower jaw. The nostril is in a narrow, oblong, quadrilateral plate. The mental plate is large and triangular, with two smaller quadrangular plates on each side at the apex of the triangle. The meatus auditorius is very distinct, of moderate size, oval in shape. The eyes are large and lateral, with rounded pupils. The upper half of the orbit is bordered by a single row of conical scales. The chin and throat are covered with small granular scales, which are somewhat larger near the chin. The scales upon the neck and abdomen are smooth and quadrangular, running in oblique rows. The upper part of the body presents numerous tubercles arranged in oblique rows, converging toward the middle line of the back. The interspaces between the tubercles are covered with very numerous black points. Upon the head and neck, numerous tubercles, larger and more abundant upon the neck, are observed, arranged in an irregular manner. The upper and lateral surfaces of the snout are covered with tubercles thickly agglomerated.

A well marked depression exists upon the snout and upper part of the head. There are thirteen or fourteen femoral pores in the specimen examined, but no pores immediately in front of the anus. Three or four of these pores extend beyond the thigh on each side about a line in front of the anus. The under surface of the extremities is covered with small imbricated scales, which are very minutely punctated with black. The under part of the fingers is provided with a double row of imbricated scales divided by a median line. The upper surface of the tail presents numerous scattered tubercles, the under surface transverse scuta, somewhat indistinct.

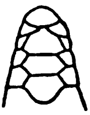
Coloration.—Upper part and sides of head yellowish. Upper part of body light chocolate color, with numerous minute points of black; upper surface of extremities of a lighter color than rest of body. Under part of body and extremities light straw color.

Dimensions.—Length of head eight lines; greatest breadth five lines. Length of body one inch and a half (Fr.); of tail two inches.

Geographical distribution.—West coast of Africa.

Remarks.—This species differs from all the species of Hemidactylus described by Dumeril and Bibron. It is well characterized by the angular plate at the chin and the disposition of the rows of tubercles upon the back.

ACONTIAS *elegans*.



Specific Characters.—No inferior eyelid; two internasal plates, pentagonal, articulating with the rostral; frontal heptagonal, broader than long; an interparietal hexagonal, more extended transversely than antero-posteriorly; an occipital plate larger than either of the others, hexagonal, its supero-external margin hollowed; a parietal plate, a fronto-parietal, one supra-ocular, two posterior oculars; a frenal, and a freno-orbitar much smaller than the frenal.

Description.—The head of this animal is small, depressed, triangular in shape above, rounded in front; the rostral plate encloses the extremity of the snout and presents a slit on each side posteriorly, extending backward and inferiorly in a curved direction to its posterior border; immediately above the rostral are two internasal plates, pentagonal, their inferior margin articulating with the posterior margin of the rostral; the frontal, interparietal and occipital form a longitudinal row nearly equal in size, upon the middle and upper part of the head. The internasal articulate with each other by their narrowest or internal margin, with the frontal, the frenal and the first labial; the frontal with the internasal, the interparietal, the freno-orbitar and the supra-ocular: the interparietal with the supra-ocular; and the fronto-parietal with the frontal anteriorly and the occipital posteriorly; the occipital articulates in front with the interparietal laterally on each side with the parietal and the fronto-parietal: the parietal are oblong, inequilateral, longer from behind forward than in the opposite direction; the fronto parietal are hexagonal, larger than the parietal; the supra-ocular are also hexagonal; the frenal plate is quadrangular articulating with the internasal, the frontal, the supra-ocular, the freno orbitar and the first labial. The eyes are distinct but without an eyelid. They are situated in an interspace formed by five scales, and covered by a scale a very little larger than the eye; the inferior of the five is the second supra-labial. Three plates margin the upper jaw on each side; there are three upon the lower; the most anterior of the upper row is quite large, presenting an acute angle forward and upward. The plate upon the under jaw, immediately behind the mental, is long and narrow; the nostrils are small, oval, nearly a line apart: immediately behind the mental is a transversely elongated triangular plate, the apex of the triangle presenting backward. Body slender, flattened below; tail long, covered at its extremity with minute trapezoidal scales; body and tail covered with smooth imbricated scales above and below: their posterior margin is convex, and they have a striated appearance, each scale having from two to five whitish striæ; the striation on the under surface; is quite remarkable; a single scale in front of the anus. There are twenty longitudinal rows of scales around the body. Tongue oval, covered with numerous small papillæ, slightly bifid at its extremity. Marginal teeth very small; no teeth in the palate, which is also without a longitudinal groove; no meatus auditorius externus visible.

Coloration.—Above dark chestnut color, the edges of the scales bordered with ash color, giving the whole a tesselated appearance; under part of abdomen and tail same color, but brighter; chin, snout, upper and under jaw yellow.

Dimensions.—Length of head 4 lines, greatest breadth 2 lines. Length of head and body five inches (Fr.); of tail 2 inches 4 lines.

Geographical distribution.—Liberia, West Coast of Africa.

General Remarks.—This animal has a general resemblance to the Acontias meleagris of Cuvier, the only species of Acontias hitherto described, but it differs from it in many important particulars, several of which become evident even upon a superficial examination. Thus it is only necessary to compare the plates of the head with the figure of them given in the fifty-eighth plate of Duméril and Bibron, to perceive at once that it is not the same animal. The A. meleagris is also larger, measuring 9½ inches (Fr.); but the tail is nearly an inch shorter, measuring 1½ inches. It differs also in having an inferior eyelid, which elegans has not; and in the form of the eye, which in meleagris resembles a longitudinal slit, but which in elegans is circular. The longitudinal fissure in the posterior part of the rostral plate is straight in meleagris, in elegans it is curved; meleagris presents a longitudinal groove in the palate, elegans has none; the scales upon the body are hexagonal in meleagris, in elegans they are trapezoidal. The number of rows of scales differs in the two animals. In the one there are but fourteen, in the other twenty.

The species of reptiles just described, with a beautiful specimen of Onychocephalus Liberiensis, were presented to the Academy by Dr. Henry A. Ford of Liberia, the gentleman to whom we are also indebted for the magnificent skeleton of Troglodytes gorilla, the largest known Troglodyte.

The Committee on the following paper by Dr. LeConte, reported in favor of publication in the Proceedings:

Remarks on some Coleopterous insects collected by S. W. Woodhouse, M. D., in Missouri Territory and New Mexico.

By John L. LeConte, M. D.

The collection of insects made by Dr. Woodhouse, to whom science is so much indebted for extensive researches on the natural history of the regions west of the Mississippi, consists chiefly of species from the boundary of the tract of land which the liberal policy of our government has set apart for the Creek Indians, and were procured while he was attached to a surveying party under Capt. Sitgreaves, of the Topog. Corps. The bulk of the collection made in Texas and in New Mexico, has unfortunately been lost in the accidents to which the traveller is so frequently subjected in those wild and dangerous regions. The few, however, that remain, are of such interest as to cause us doubly to regret the destruction of the rest, and fervently to hope that the industry of future travellers may soon repair these unavoidable losses.

1. Cicindela cuprascens, subelongata, subcylindrica, capite thoraceque fusco-æneis, hoc lateribus leviter rotundatis tenuiter albo-pubescente, impressionibus transversis profundis, linea longitudinali tenui, elytris thorace sesqui latioribus dense punctatis cupreis, macula basali, margine toto laterali, striga obliqua subhumerali, apice hamata, fascia media elongata valde refracta intus dentata, lunulaque apicali ochroleucis dilatatis, apice oblique sinuatis acutis, serrulatis; trochanteribus posticis testaceis; labro albo, transverso, edentato. Long. ·4—·53.

Cicindela blanda var. δ. Lec. Ann. Lyc. 4, 180.

I found several specimens of this elegant species on the Arkansas river, and have heretofore considered it as a variety of C. blanda Dej. After further examination I am convinced that it must be considered as distinct. It is closely allied to C. blanda, but is less elongated in its form, and the elytra, although cylindrical, are not so convex. The labrum is short, and, as in C. blanda, the teeth of the anterior edge are obsolete; the palpi are pale, with the tips brassy green. The thorax is very finely, not densely wrinkled; the sides are more rounded than in C. blanda, although, as in that species, they are less convex in the female. The elytra are of a brilliant copper-color, more coarsely and densely punctured than in C. blanda. The markings are as in C. blanda, but very broad, and the upper part of the medial fascia is less tortuous. The elytra of the female are strongly excised on the outer edge near the tip, precisely as in C. blanda. The body beneath is greenish bronze, covered with fine dense white hair; the posterior trochanters are testaceous.

The insect that I have considered as *C. blanda var.* γ must also be separated as a distinct species under the name.

C. tarsalis, elongata, vix cylindrica, fuseo-picea opaca, thorace lateribus rotundatis, utrinque leviter constricto, breviter albo pubescente, elytris ochreis, sutura antice lineolisque obliquis fuscis, apice oblique attenuatis serrulatis; labro transverso, edentato; tibiis testaceis trochantibus posticis flavis, tarsis posticis longissimis. Long. ·48.

One male, Canootche river, Georgia. The diagnosis enables this species to be distinguished from the preceding and from C. blanda. The color is dull, without any metallic gloss. The elytra are less cylindrical and less convex, and the markings are so broad that the interstices between them are reduced to narrow fuscous lines; the punctures of the dark parts of the elytra are large and dense, but not deep. The tibiæ are pale, with the tip darker; the posterior tarsi are more than one-fourth longer than in C. blanda. The body beneath is black, covered with short, dense white hair.

2. Cicindela cumatilis Lec. Ann. Lyc. 5, 173.

A variety of this beautiful species was found with the spots much larger than in the type, so that the medial band attains the margin, and is only interrupted on the disc: the spot anterior to the apical lunule is also enlarged, and there is a very minute white humeral dot.

3. Cicindela n. sp.

A very small species, probably allied to C. germanica, indicated only by a single elytron. The markings are so different from any other species within our territory, that a description of even this fragment will enable the species to be easily recognized.

The color is brownish black, without metallic lustre; the surface is sericeous with fine granulations; the punctures are distant, large and deep; the humeral lunule is very narrow; the oblique posterior part is curved; the margin is white, interrupted only at the apical lunule; the anterior band perpendicular, and united to the margin externally, descending slightly at its inner part, and terminating in a small spot near the suture; the margin along the apical lunule is finely serrate, and obliquely attenuated almost to the tip, which is very suddenly rounded, and almost truncate; the suture is armed with a very minute spine.

4. Lachnophorus elegantulus Man. Bull. Mosc. 1843, p. 43: ibid 1846, p. 7.

Tachypus mediosignatus Menétriès, Bull. Soc. Petrop. 1843. This pretty little insect seems to have a very extensive distribution. I found it in abundance on the banks of the Gila near the Pimas villages. Dr. Woodhouse took it on the Creek Boundary, and Mr. Pease brought a specimen from Mexico.

5. Chlœnius vafer, nigro piceus, capite cyaneo, thorace cyanescente, latitudine breviore, antrorsum angustato et lateribus rotundato, subtiliter obsolete punctato, elytris thorace latioribus dense punctulatis, et pubescentibus, striis fere ad apicem fortiter punctatis, antennarum basi pedibusque ferrugineis. Long. ·45.

Creek Boundary. This species is allied to C. tricolor, nemoralis, vicinus, &c., but the punctures on the thorax are very small and almost obliterated. The labrum is wide, scarcely emarginate; the head is bright blue, very finely punctulate and wrinkled; the thorax is bluish, wider than long, at the apex narrower than at the base; very much rounded on the sides anteriorly; the base is truncate; the angles obtuse, not rounded; the disc scarcely convex, finely and very obsoletely punctured; the basal impressions long and shallow. The elytra are wider than the thorax, dull black; the striæ are deeply punctured nearly to the tip; the interstices are slightly convex, and very finely punctured. The first three joints of the antennæ, the palpi and the legs are ferruginous.

6. Euryderus zabroides Lec. An. Lyc. 4, 152, tab. 8, fig. 5.
The genus Eurydera Lap. seems to be founded upon good characters, although it was for a long time refused by entomologists. Its adoption requires a change of name for my genus, and in allusion to the singular form of the anterior tibiæ, I give Nothopus as the new generic name.

7. Calosoma externum. *Carabus externus* Say. J. Ac. Nat. Sc. 3, 150: Lec. An. Lyc. 4, 445. *Calosoma longipenne* Dej. Sp. Gen. 5, 568. This insect after all, seems to be a genuine Calosoma, by the structure of the antennæ and palpi. I have seen specimens without wings, but extensive observation has convinced me this is to be considered as accidental. Its form is more similar to Carabus than any other species of Calosoma.

8. Euphoria melancholica Schaum. An. Ent. Soc. Fr. 2d ser. 2. 374. A specimen from New Mexico has the thorax and elytra much less punctured than the Louisiana specimens, but I can find nothing worthy of being considered a specific difference.

9. Eleodes sulcata, nigra, thorace parvo, ovato, parce punctulato, basi truncato, elytris ovalibus apice acutis, dorso depressis, postice valde declivibus, profunde sulcato-striatis, sulcis granulatis, femoribus anticis breviter armatis. Long. ·75—·97.
A fine species, abundant in every part of Missouri Territory and easily distinguished by its sulcate elytra. Head punctured. Thorax a little wider than long, rounded on the sides, narrowed behind; moderately convex, sparsely punctured, anterior angles prominent acute, base truncate. Elytra more than twice as wide as the thorax, elongate oval, depressed on the disc, deflexed at the apex, which is acute; the lateral margin obtuse; striæ broad, deep and obtuse, rough with elevated points; interstices not wider than the striæ, convex, marked each with a single series of distant punctures; epipleuræ less deeply striate than the disc. Anterior thighs armed with a short, sharp tooth. The female differs by having the elytra broader and less acute at the tip.

10. Myodes scaber, ater, confertim punctatus, vertice elevato, thorace antrorsum angustato, utrinque truncato, medio obsolete carinato, elytris parce punctatis, abdomineque flavis. Long. ·35.
A very imperfect specimen from the Creek boundary, which is distinguished from another Southern species having a yellow abdomen, by its much larger size, more punctured head and thorax, and immaculate black feet. I am inclined to believe that the color of the abdomen is a sexual character as in the European M. subdipterus.

11. Acmæodera variegata, cupreo-ænea, pilosa, thorace brevi confertissime punctato, macula laterali lutea, elytris basi minus convexis, fasciis irregularibus luteis anterioribus confluentibus. Long. ·35.
The specimen of Dr. Woodhouse being imperfect, my description is taken from some collected by Mr. Fendler near Santa Fe.
Body coppery-bronzed, with erect brown hair. Thorax very densely and coarsely punctured, three times as wide as long, sides rounded anteriorly, al-

most parallel behind; margin behind the middle with a yellow spot. Elytra less convex at the base than in A. pulchella, with rows of large points, becoming striæ behind the middle; interstices with a single series of small distant punctures; the ordinary yellow bands are more numerous, and those before the middle are confluent, so only the suture, a large humeral spot and a transverse spot one fourth way from the base, remain bronzed. The two posterior fasciæ are oblique; the anterior one of them includes a small marginal spot; the tip is yellow. Beneath immaculate, bronzed, punctured. Varies with the anterior spot of the elytra large and confluent with the suture.

12. Dicerca Woodhousii, ænea, nitida, chalybeo-variegata, thorace cribratim punctato, brevi, lateribus valde rotundatis, antrorsum angustato, angulis posticis rectis, elytris apice integris, seriatim crenatis, maculis irregularibus opacis transversis profunde impressis. Long. ·72—·97.

I take great pleasure in dedicating this fine species to the enterprising traveller to whom we owe its discovery.

Body coppery-bronze, varied with bluish reflections, moderately stout and convex; head strongly punctured, with three faint confluent elevated lines on the front, labrum green; thorax cribrate, more than twice as broad as long, narrowed in front, very strongly rounded on the sides, narrowed a little towards the posterior angles, which are rectangular and sharp. Elytra with rows of large points, and with numerous deep impressed subconfluent spaces, which are opake, densely punctured and finely pubescent; tip entire. Legs green bronzed, knees, tip of the tibiæ, and tarsi steel blue. Tip of the abdomen of the male very slightly truncate; of the female rounded.

12. Pristilophus puncticollis, niger, nitidus, thorace antrorsum subangustato, lateribus confertim, disco minus dense punctato, elytris crenato-striatis, interstitiis paulo convexis, distinctius punctulatis. Long. ·75—·9

This species is tolerably abundant in every part of Missouri Territory. It is closely allied to P. morio Germ. Zeitsch. 4, 85, but the elytral striæ are not so deep, and the interstices are but very slightly convex. Head strongly punctured. Thorax longer than wide, somewhat narrowed in front, slightly rounded on the sides, which are strongly margined; disc moderately punctured, sides very densely punctured, scarcely impressed towards the anterior angles, posterior angles slightly diverging. Elytra as wide as the thorax, striæ punctured, not deeply impressed, interstices scarcely convex, finely and irregularly punctured.

14. Arhopalus charus, Lec. Journ. Ac. Nat. Sci. 2d ser. 2, 17· Among those brought by Dr. Woodhouse is a variety, in which the yellow tip of the elytra is much larger, inclosing a black spot.

The Committee to which was referred a paper by Prof. Baird and Mr. Charles Girard on the characteristics of some New Reptiles in the Museum of the Smithsonian Institution, reported in favor of publication in the Proceedings.

Characteristics of some New Reptiles in the Museum of the Smithsonian Institution.

By Spencer F. Baird and Charles Girard.

Full description and figures of these species will shortly appear in Capt. Stansbury's Report to Congress on the great Salt Lake (Utah.)

SIREDON LICHENOIDES, B.—Body uniform blackish brown, covered all over with licheniform patches of grayish yellow; snout rounded; tail compressed, and lanceolated; toes broad and short. Caught by R. H. Kern, Esq., in a lake at the head of Santa Fé Creek, in New Mexico.

Cnemidophorus tigris, B. and G.—Scales on the subguttural fold small in size; four yellowish indistinct stripes along the dorsal region. From the Valley of the great Salt Lake. Collected by Captain Stansbury.

Crotaphytus Wislizenii, B. and G.—Head proportionally narrow and elongated; cepnalic plates and scales on the back very small: yellowish brown, spotted all over with small patches of deeper brown or black. Caught near Santa Fé. by Dr. Wislizenius; specimens of the same species sent in by Lieut. Col. J. D. Graham, collected between San Antonio and El Paso del Norte.

Uta (nov. gen.) B. and G.—Upper part of body covered with small scales; a pectoral fold of the skin; auditory apertures; femoral pores present, whilst anal pores are wanting.

Uta Stansburiana, B. and G.—Tail slender, elongated and conical, provided with large scales disposed in verticils; a subgular fold in advance of the pectoral one. From the valley of the Great Salt Lake; brought home by Capt. Stansbury.

Sceloporus graciosus, B. and G.—Head subconical; scales of the back larger than in any other part of the body; tail of medium size, slender and conical. From the valley of the great Salt Lake.

Elgaria scincicauda, B. and G.—This is the *Tropidolepis scincicaudus* of Mr. Skilton as published in Silliman's Journal vii. 1849, 202. The specimen there described and figured is immature. From full-grown individuals we have drawn the following characters: Dusky green above, light ash colored below. Eleven transverse black bands on the back interrupted on the dorsal line, white dotted on their posterior margin. There are six or more of those bands on the tail. Thirteen to fourteen rows of scales, all of which well carinated. This species inhabits Oregon and California.

Plestiodon Skiltonianum, B. and G.—Head small, continuous with the body; tail stout, very long and subquadrangular. Olivaceous brown, with one broad band of black on each side. Inhabit Oregon in company with the preceding. Collected by Rev. George Geary.

Phrynosoma platyrhinos, G.—Snout truncated, flattened, concave; nostrils situated within the internal margin of the superciliary ridge; occipital and temporal spines of middle size; one row of pyramido-horizontal and abdomino-peripheric scales, smaller than in *Phr. Douglassii*. Lower surface of head covered with small and nearly uniform scales; on the sides and near the neck a series appears a little more conspicuous, slightly raised and acute. Inframarginal series of plates large, of stout appearance, sharp and acute, above which two rows of small plates are seen lining the margin of the lower jaw. Scales of the body middle size. Femoral pores very conspicuous, but more apart than in *Phr. Douglassii*. The lower surface of the body is unicolor. From Great Salt Lake; collected by Capt. Stansbury's party.

Phrynosoma modestum, G.—Snout truncated, flattened, but not concave. Nostril openings situated within the internal margin of the superciliary ridge. Occipital and temporal spines but little developed. No pyramido-horizontal scales at the periphery of the abdomen. Lower surface of head covered with minute, generally uniform, scales. Row of inframarginal plates resembling that in *Phr. platyrhinos*, above which, however, one single series of smaller plates is observed, lining the margin of the lower jaw. Scales on the belly proportionally larger than in any other species, smooth, subquadrangular or trapezoidal. Femoral pores conspicuous, the series from right and left meeting on the middle line of the belly and forming a curve, the convexity of which is turned backwards towards the vent; the lower surface of the body is unicolor. Brought from the valley of the Rio Grande west of San Antonio, by Gen. Churchill, and from between San Antonio and El Paso del Norte, by Lieut. Col. J. D. Graham.

CHURCHILLIA (nov. gen.) B. and G.—Three pair of frontal plates, one more than in *Coluber* and *Tropidonotus* ; a very small loral, and several small post-orbitals. Scales carinated.

CHURCHILLIA BELLONA, B. and G.—Bodies yellowish, with a series of large sub-hexagonal patches of brown bordered with black, and two or three rows of smaller patches on the sides; a brownish black band across the eyes from top of head to the angle of the mouth. Collected by Gen. Churchill on his march along the Rio Grande in 1846.

COLUBER MORMON, B. and G.—Posterior frontal plates very large; vertical plate long and narrow on its middle; eyes very large. Found in the valley of the Great Salt Lake by Captain Stansbury.

HETERODON NASICUM, B. and G.—Numerous minute frontal plates instead of two large pairs; two brown stripes over the head; temporal patches very broad. Collected in Texas by Gen. Churchill.

The Committee to which was referred a paper by Dr. Leidy, entitled "On the Osteology of the Head of the Hippopotamus and a description of the osteological characters of a new genus of Hippopotamidæ," reported in favor of publication in the Journal.

ELECTION.

The following gentlemen were elected *Members* of the Academy, viz :

J. C. Trautwine, Esq; J. Forsyth Meigs, M. D.; Jacob G. Morri Esq.; Rev. Henry W. Ducachet; Frederick A. Genth, M. D.; Elia Durand, Esq.; J. M. Allen, M. D.; James Aitken Meigs, M. D.; William Camac, M. D.; Mr. Henry J. Boller; Mr. George Yeager; all of Philadelphia.

May 4th, 1852.

Mr. Ord, President, in the Chair.

Letters were read:

From Commander H. F. Adams, U. S. N., dated Philadelphia, April 20th, 1852, addressed to Dr. Ruschenberger, acknowledging the receipt of a copy of his "Notice of the Academy of Natural Sciences," and expressing his desire to further the objects of the Institution, during his connection with the projected U. S. Expedition to the East Indies.

From Dr. Wm. F. Daniel, dated London, March 12th, 1852, accompanying the donation of a copy of his work on the Diseases, &c., of Western Africa.

Dr. LeConte presented a communication intended for publication, entitled, "Synopsis of the Anthicites of the United States." Referred to Dr. Leidy, Dr. Henderson and Dr. Hallowell.

Dr. Leidy called the attention of members to two crania of extinct species of Ox. One is the original specimen described by Dr. Wistar in the Transactions of the Am. Phil. Soc., and afterwards named Bos bombifrons by Dr. Harlan. The second specimen was found on the shore of the Arkansas river, and was brought to this city by Mr. Thomas Kite, of Cincinnati. It is remarkable for the very large process crowning the top of the head, resembling a thick exostosis. Dr. Dekay has described a fragment of the same species,[*] and referred it to the Bos Pallasii, from which it is, however, very distinct. Dr. L. stated that this fossil, as well as that described as Bos bombifrons, were remarkable for the possession of large larmiers or lachrymal depressions, as in the deer; and if these are possessed by the Ovibos moschatus, the two fossils would belong to the same genus as Ovibos bombifrons and O. cavifrons; but if they are not possessed by Ovibos, as is stated to be the case by Desmarest, the two latter species would form a new genus, for which the name Bootherium is proposed.

May 11th.

Major John LeConte in the Chair.

Letters were read:

From the Smithsonian Institution, dated Washington, April 14, 1852, acknowledging the receipt of the Proceedings of the Academy, Vol. vi. No. 1.

From Prof. A. Retzius, dated Stockholm, Oct. 16, 1851, accompanying his donation of works announced this evening.

From the Rev. Dr. Ducachet, dated May 5, 1852, acknowledging the receipt of his notice of election as a Member.

Mr. Langstroth, referring to the specimens of Honey Ant presented by him this evening, remarked that they were obtained by his brother in the vicinity of Matamoras, Mexico. He had learned that a part of the colony are incapable of locomotion, and are used as living repositories for the surplus honey of the colony, which in time of need answer the purpose of the full honey-combs of the bee.

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[*] An. Lyc. Nat. Hist., Vol. 2, p. 280. pl. vi.

Dr. Leidy remarked that the honey was contained within the stomach, which, with the abdomen, was enormously distended, assuming a globular condition. The pergamentaceous segments are widely separated and appear as black bands upon the dorsal and ventral surfaces of the translucent abdomen. The thorax and head are about two lines long; the distended abdomen 4½ lines in diameter. All the other viscera of the abdomen are completely obliterated, and even the tracheal vessels have entirely disappeared, which is an important physiological fact, as by the supply of oxygen being cut off, none of the honey is consumed in the process of respiration. On the outside of the basement membrane of the stomach, is a single layer of branching fibres, (muscular?) The striped muscular fibres connecting the abdominal segments together, are collected in very thin bands with wide intervals, and are exceedingly elongated.

A paper by Dr. Woodhouse was presented, entitled "Description of a new species of Lepus" (L. larreæ,) and intended for publication; which was referred to Dr. Fisher, Dr. Watson and Dr. Zantzinger.

Also a second paper by the same, describing a new species of Ectopistes, (E. marginella,) which was referred to the same Committee.

Mr. Lea read a paper entitled "Description of a fossil Saurian of the New Red Sandstone of Pennsylvania, with some account of the Formation;" which being intended for publication in the Journal, was referred to Mr. Aubrey H. Smith, Mr W. P. Foulke, and Mr. Vaux.

May 18*th*.

Vice-President Bridges in the Chair.

A letter was read from the Secretary of the Trustees of the New York State Library, dated Albany, May 12th, 1852, acknowledging the receipt of the Proceedings, Vol. vi. No. 1.

Mr. Lea read a paper intended for publication in the Journal, "On some new Fossil Molluscs in the Carboniferous Slates of the Anthracite Seams of the Wilkesbarre Coal Formation," which was referred to Dr. Wilson, Dr. D. D. Owen and Dr. Leidy.

Dr. Owen read a paper entitled "Notice of a Mineral from California," which being intended for publication in the Proceedings, was referred to Dr. C. M. Wetherill, Mr. Vaux and Dr. Rand.

Dr. Bridges read some additions to a paper lately presented by Mr. C. Girard, on the North American Astaci; which were referred to the Committee on the former portion of the paper.

May 25*th*.

The President, Mr. Ord, in the Chair.

The Committee on Mr. Dana's continuation of his descriptions of the Crustacea of the Exploring Expedition, reported in favor of publication in the Proceedings:

Conspectus Crustaceorum, &c. Conspectus of the Crustacea of the Exploring Expedition under Capt. Wilkes, U. S. N., including the CRUSTACEA CANCROIDEA CORYSTOIDEA. By JAMES D. DANA.

I. CRUSTACEA CANCROIDEA.

A synopsis of the genera of Cancroidea—the Cyclometopa of Edwards—including their arrangement into families and other groups, has been published by the writer in the American Journal of Science, 2d ser., vol. xii, p. 121. The following pages contain descriptions of the new species in the expedition collections, arranged in accordance with the classification explained in that paper. The distinctive characters of the genera will there be found, both of those of other authors, as far as accepted, and those here instituted.

Fam. I. CANCRIDÆ.

Subfam. CANCRINÆ.

Genus CANCER, Leach, (Platycarcinus, *Edw.*)

CANCER MAGISTER.—Carapax nudus, granulatus, paulo convexus, superficie paulo undulatus, lateraliter triangulatus et acutus, margine postero-laterali fere recto, antero-laterali 10-dentato, dentibus paululo prominentibus, margine dentis postero longissimo et fere recto, subtiliter crenulato, dente ultimo triangulato; fronte inter-antennali 3-dentato; articulo antennarum externarum 1mo apicem crasse producto. Pedes antici subæqui, manu supra cristatà, multidentatà, extus costatà, digito mobili supra denticulato. Pedes 8 postici valde compressi, tarso paulo lato, articulis supra granulatis, 4to supra canaliculato, tarso articuloque 5to pedis 5ti infra bene ciliatis. Articulus maxillipedis externi 3tius oblongus, apice externo obliquè truncatus. *Hab.* portu "San Francisco." *Long.* carapacis 4½″, *lat.* 7″.

CANCER GRACILIS.—Carapax nudus, partim minutè granulatus, valde convexus, non distinctè areolatus, superficie non undulatus, lateraliter triangulatus et acutus, margine postero-laterali fere recto, antero-laterali 9-dentato, dentibus regularibus, acutis, paulo prominentibus dente 1mo vix longiore quam 2dus, totus margine postero fere rectis et longis et subtiliter denticulatis, fronte inter-antennali 3-dentato. Maxillipedes externi pubescentes, articulo 3tio apicem externum valde arcuato aut rotundato, margines apicalem at externum longè ciliato. Pedes antici subæqui, manu subcristatà, cristà 1—2-dentatà, superficie externà costatà. Pedes 8 postici nudi, tarso longo, tenuissimo, nudo. *Hab.* portu "San Francisco." *Long.* carapacis 13‴, *lat.* 19‴.

Subfam. XANTHINÆ.

Genus LIOMERA, *Dana.*

Carpilio, aspectu, pedibus nudis quoad margines obtusis antennisque similis. Carapax valde transversus, subellipticus, lateribus rotundatis, margine antero-laterali non breviore quam postero-lateralis, fronte brevissimè bilobato. Ramus maxillipedis primi internus non lobatus, apice fere rectus. Pedes usque ad tarsos nudi. An *Carpilius cinctimanus*, White, hic pertinet?

LIOMERA LATA.—Carapax nitidus, valde transversus, transversim bene ellipticus, antice versus marginem anticum subareolatus, in medio areolis inconspicuis; fronte brevi, perpendiculariter deflexo, supernè viso fere recto et super orbitas vix saliente, leviter emarginato; margine antero-laterali crasso et crassè rotundato, 4-lobato, lobis 2do 3tio 4toque validis, rotundatis, 3tio majore. Pedes antici æqui, mediocres, manu lævi, digitis brevibus. *Hab.* ad insulas "Feejee." *Long.* carapacis 7‴, *lat.* 13½‴.

Genus ACTÆA, (*De Haan*) *Dana.*

ACTÆA AREOLATA.—*A. hirtissimo* vel *specioso* affinis. Carapax latior, valde transversus, infra omnino brevissimè hirsutus, supra omnino areolatus, subtillissimè hirsutus, pilis vix longioribus quam granuli, areolà 2M[*] subdivisà, ejus parte externà etiam partim subdivisâ, 3M tripartità 1P tripartità; margine antero-laterali longo, leviter 5-lobato, postero laterali brevi, valde concavi. Pedis brevissimè hirsuti; antici subæqui, granulosi, manu carpoque paulo nodosis, digitis striatis, scabris, brevissimè hirsutis, bene triangulato-dentatis. Pedes postici granulosi, densè brevissimèque hirsuti. *Hab.* freto "Balabac.,' *Long.* carapacis 5.9‴, *lat.* 9.33‴.

Actæa cellulosa.—Carapax antice posticeque malè areolatus, omnino cellulosus, nudus, margine antero-laterali imperfectè 3—4-lobato et cellulis excavato, margine postero-laterali perbrevi et concavo. Pedes antici subæqui, manu carpoque superficie cellulosis, manu extus infraque subtiliter villosà, digitis scabris, etiam villosis. Pedes 8 postici cellulis excavati, breves. *Hab.* ad insulam "Tutuila" Samoensem. *Long.* carapacis 3‴, *lat.* 4.3‴.

Genus Xantho.

Subgenus Xantho.

Articulus antennarum externarum 1mus orbitæ fissuram internam fere implens, articulum sequentem medio gerens. Corpus bene transversum, margo anterolateralis ab angulo orbitæ incipiens.

1. *Pedes* 8 *postici cristati.*

Xantho nitidus.—Carapax lævis, paulo nitidus, antice partim leviter areolatus, areolis 2M 5L 6L postice vix circumscriptis; fronte fere recto, non emarginato, margine antero-laterali leviter 3—4-lobato, lobis subtriangulatis, angulo orbitali externo non saliente. Pedes antici subæqui, inermes, fere læves (subtillissime corrugatæ,) manu bene cristatâ, digito mobili subcristato et dente basali magno carente. Pedes 8 postici bene cristati, fere nudi, marginibus integris, apice margineque inferiore articuli 5ti brevissimè hirsuti-villosis, tarso supra infraque etiam villoso. *Hab.* juxta insulas "Viti" vel "Tonga." *Long.* carapacis 3.2‴, *lat.* 5‴.

Xantho superbus.—Carapax paulo convexus, antice sed non medio areolatus,

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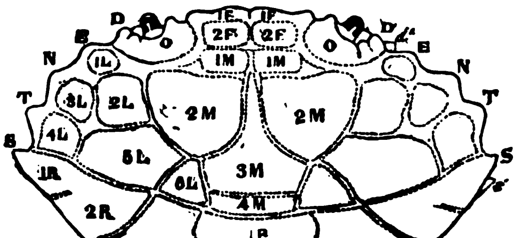
[*] Areolæ carapacis normales dentesque sic nobis deominati.



F. *Regio Frontalis.*—1F, areola præfrontalis; 2F, post-frontalis.

M. *Regio Mediana.*—1M. areola præmediana; 2M, extra-mediana; 3M, intra-mediana vel gastrica; 4M, post-mediana.

P. *Regio Posterior.*—1P, areola cardiaca; 2P, intestinalis.

L. *Regio Antero-lateralis.*—Areolæ sunt normales, 1L, 2L, 3L, 4L, 5L, 6L.

R. *Regio Postero-lateralis.*—Areolæ sunt normales, 1R. 2R, 3R.

O. *Regio orbitalis.*

Dentes normales antero-laterales numero quinque sunt et designati D. E, N, T, S. Alter dens supplementalis pone S, *s* denominatus et alter inter dentes D et E, *d*. Vide "Amer. Journ. Sci." [2], vol. xi, p. 95.

areolis 3M 4M 5L 6L *fere* coalitis et postice vix circumscriptis, sulcis anterioribus villosis; fronte paulo sinuoso, emarginato; margine antero-laterali crassè 4-dentato, dentibus duobus anticis rotundatis. Pedes cristati, manu extus subseriatim minute tuberculatâ, supra valde cristatâ; pedibus posticis quoad margines dense hirsutis, tarso villoso. *Hab.* ad insulam "Raraka" archipelagi Paumotensis. *Long.* carapacis 13‴; *lat.* 21‴.

2. *Pedes* 8 *postici non cristati.*

XANTHO DISPAR.—Carapax fere planus, ellipticus, latere rotundatus, non nitidus, antice non bene areolatus, prope marginem impressus, margine antico areolarum 1M 2M paulo impresso, lineis duabus regionem antero-lateralem intersecantibus; fronte fere recto, non producto, margine antero-laterali crassiusculo, subacuto, fere integro, levissimè trilobato, lobo antico (D E N respondente) plus duplo longiore quam 2dus (T) angulo post-orbitali non saliente. Pedes antici valde inæqui, manu supra latè rotundatâ, corrugatâ et partim granulosâ, digito mobili non canaliculato, dente magno basali. Pedes 8 postici breves, subnudi, articulis 4to 5toque supra granulosis, 5to tarsoque minutè villosis. *Hab.* portu "Rio Janeiro." *Long.* carapacis 5½‴; *lat.* 8½‴.

XANTHO MINOR.—*X. parvulo*, affinis. Carapax anticè areolatus, areolis leviter elevatis, 2M 3M 5L 6L postice circumscriptis, 2M cum rugâ transversim divisâ; fronte fere recto, leviter emarginato, margine antero-laterali tenui, 4-dentato, dentibus tribus posticis subtriangulatis. Pedes antici mediocres, carpo manuque supra paulo granulosis, manu extus leviter granulato-costatâ et supra sulcatâ, digito mobili cum dente magno basali non armato. Pedes 8 postici sparsim pubescentes. *Hab.* insulam Madeira vel "Cape Verds." *Long.* carapacis 2.1‴, *lat.* 3.1‴.

Subgenus PARAXANTHUS, *Lucas*, (D'Orb. S. A. p. 18.)

Hic referemus *Xantho sexdecimdentatum*, Edw. et Lucas, (D'Orb. S. America, tab. 7, p. 2,) fronte, ac in *Paraxantho*, horizontaliter producto, lateribus rotundatis et expansis, abdomine angusto, articulo antennarum externarum 1mo brevi.

Subgenus EUXANTHUS, *Dana.*

Articulus antennarum externarum 1mus orbitæ fissuram internam ad summum implens, cavitate in ejus apicis latere antico articulum proximum gerente. Margo antero-lateralis sub orbitâ antice productus.

EUXANTHUS SCULPTILIS.—Carapax antice posticeque profundè areolatus, areolâ 2M bipartitâ, ejus partibus transversim subdivisis, totisque areolis plus minusve rugatis aut incisis; fronte inter-antennali bilobato paulo prominente, margine orbitæ sub antennâ saliente; margine antero-laterali 6—7-dentato, dentibus sat crassis, pyramidicis, obtusis. Pedes antici æqui, carpo crassè nodoso, manu supra tuberculatâ, extus costatâ, digito mobili supra denticulato. Pedes postici mediocres, articulo 3tio granuloso, 4to 5toque supra rugatis aut tuberculosis, tarso villoso. Abdomen valde areolatum. *Hab.* archipelago Vitiensi (Feejee) vel Tongensi. *Long.* carapacis 11½‴, *lat.* 17½‴.

EUXANTHUS NITIDUS.—*E. sculptili* quoad pedes anticos et posticos marginem carapacis antero-lateralem frontemque similis. Carapax omnino valde areolatus, areolis plerisque levibus, interdum leviter rugatis, angulo orbitæ externo tenui et non tuberculiformi nec angulato. *Hab.* ibid. *Long.* carapacis 9‴, *lat.* 14‴.

Subgenus XANTHODES, *Dana.*

Articulus antennarum externarum 1mus brevis, processum frontis oblongum attingens tantum. Carapax sæpe angustior, sæpe *Pilumno* paulo similis, lateraliter angulum ad dentem S habens, et non rotundatus ac in *Paraxantho*.

XANTHODES GRANOSO-MANUS.—Carapax lævis, prope margines anticum et antero-lateralem granulosus, antice parce areolatus, areolis 2M 3M postice saepius vix circumscriptis, 4L 5L 6L coalitis et postice non circumscriptis; fronte fere recto, emarginato, margine antero-laterali non tenui, 5-dentato, dentibus sat isolatis, vix acutis, D vix prominente, E parvulo et granuliformi. Pedes antici fere æqui, manu supra rotundatâ, supra infraque granulosâ, extus latè costatâ, costis granulosis, carpo granuloso, digitis canaliculatis. Pedes postici fere nudi, articulis 4to 5toque supra granulosis, tarso brevissimè villoso. *Hab.* ad insulas Samoenses ("Navigators") quoque credimus Tahitienses ("Society") et Paumotenses. *Long.* carapacis 4¼'''; *lat.* 6¼'''.

Xanthodes nitidulus.—Carapax lævis, nitidus, anticè partim areolatus, areolis 1M 2M 3M vix discretis, 2L 3L extus abruptis, 2L cum 4L 5L 6L sæpius coalitis hisque postice non bene circumscriptis, 3L circumscriptâ; fronte leviter arcuato, emarginato; margine antero-laterali 4-dentato, dente D obsoleto, dentibus E N T S subconicis, subacutis, nitidis. Pedes antici paulo inæqui, inermes, læves, manu supra obtusa, prope marginem supernum uni-canaliculatâ; carpo prope articulationem apicalem paulo excavato. Pedes 8 postici margine superno articulorum 3tii 4ti 5tique valde hirsuti, tarso hirsuto, articulo 3tio supra non denticulato. *Hab.* archipelago Paumotensi. *Long.* carapacis 5'''; *lat.* ''' 7¾'''.

Xanthodes notatus.—Carapax antice bene areolatus, areolis planis, fere lævibus et subtillissime erosis, sulcis abruptis, fronte fere recto, emarginato; margine antero-laterali 5-dentato, dente D fere obsoleto, E N tuberculiformibus, T S acutis et spiniformibus. Pedes antici valde inæqui, manu carpoque pedis majoris minute tuberculatis, manu infra lævi, nitidâ, manu carpoque pedis minoris spinulis dense armatis. Pedes 8 postici hirsuti, articulo 3tio supra denticulato. *Hab.* ad insulas Paumotenses vel Tahitienses; quoque insulas Hawaienses. *Long.* carapacis feminæ ovigeræ 3¾'''; *lat.* 5¼'''.

Genus Panopæus, *Edwards.*

Panopæus lævis.—Carapax lævis, vix nitidus, non bene areolatus, fronte fere recto, non producto, minute emarginato, margine antero-laterali tenui, 4-lobato, lobis 2do 3tioque bene dentiformibus et acutis, margine eorum postico arcuato, 4to angustiore. Pedes antici valde inæqui, inermes, supra rotundati, manu lævi, extus paulo nitidâ, digito mobili lævi, dente magno basali carente. Pedes 8 postici tenues, marginibus pubescentibus, articulo 3tio fere nudo. *Hab.* ———— ? *Long.* carapacis 5½'''; *lat.* 7¼'''.

Genus Medæus, *Dana.*

Carapax angustus, paulo transversus. Orbitæ margo inferior externusque dentibus tribus instructus. Frons sat brevis. Margo carapacis antero-lateralis sub orbitâ productus. Articulus antennæ externæ 1mus orbitæ fissuram fere implens ac in subgenere *Xantho.* Abdomen maris 5-articulatum, segmento ultimo brevi. Pedes antici crassi.

Medæus ornatus.—Carapax paulo transversus, profundè areolatus, areolis asperatis præcipue in parte anteriore, nec 2M nec 3M subdivisâ, margine antero-laterali 5—6-dentato, dentibus D d E N T S designatis, scabris, orbitâ 4 dentibus circumdatâ; fronte producto, latiore, bene emarginato, lobis margine concavis. Pedes antici asperè tuberculato, manu tuberculis asperatis fere oblongis et non acuminatis armatâ, digitis asperatis. Pedes postici pubescentes, articulo 3tio supra spinuloso. *Hab.* prope insulam "Lahaina" Hawaiensem. *Long.* carapacis 5.1'''; *lat.* 7'''.

Subfam. CHLORODINÆ.

Genus Etisus, *Leach.*

Etisus deflexus.—Carapax leviter bene areolatus, lævis, fronte inter-antennali 4-lobato, tenui, valde deflexo, setigero, margine antero-laterali 5-dentato, dentibus subacutis, 2do minore. Pedes antici sat longi, manu carpoque extus supraque bene granulosis, digitis lævibus; reliqui angusti, valde pilosi. Abdomen maris 5-articulatum eoque *levimani* simile. *Hab.* archipelago Vitiensi. *Long.* carapacis 6'''; *lat.* 9¼'''.

Etisus levimanus, *Randall,* (Jour. Acad. Nat. Sci. Philada. viii. 115) ad insulas Vitiensis et Hawaienses lectus. *Long.* carapacis 19''', *lat.* 31'''.

Subgenus Etisodes, *Dana*.

Etiso differt brachio parce exserto, carapace angustiore et non lateraliter producto, formâ Xantho simile et non Cancro uti in Etiso.

Etisodes frontalis.—Carapax vix nitidus, minus transversus; antice areolatus, postice planus, areolis fere planis, areolâ 2M simplice; fronte producto, horizontali; margine antero-laterali 5-dentato, dentibus subtriangulatis, dente posteriore (S) minore. Pedes antici inermes, manu supra non lævi, digito mobili supra fere 3-carinato, carpo granuloso, prope articulationem manus prominente. Pedes 8 postici paulo pubescentes, articulo 3tio inermi. *Hab.* mari Suluensi. *Long.* carapacis 3'''; *lat.* 3½'''.

Etisodes cælatus.—Carapax valde convexus et areolatus, areolis tuberculiformibus, parce granulosis, areolâ 2M longitudinaliter subdivisâ, 3M tripartitâ, 4M tripartitâ, 1P et 2P valde disjunctis et bene circumscriptis, transversis; fronte inter-antennali 4-lobato, lobis externis parvulis, non salientibus; margine antero-laterali 5-dentato, dentibus obtusis. Pedes antici sat crassi, carpo tuberculoso, manu extus seriatim spinulosâ aut spini-tuberculosâ, digito supra spinuloso. Pedes reliqui compressi obsoletè pubescentes, marginibusque valde hirsuti. Abdomen feminæ 7-articulatum. *Hab.* ad insulam "Wakes," maris Pacifici. *Long.* carapacis 10'''; *lat.* 14''.

Genus Zozymus, *Leach*. (Ægle, *De Haan*.)

Atergati Acteæque differt pedibus 8 posticis cristatis.

Zozymus gemmula.—Carapax nudus, non granulatus, nitidus, antice bene areolatus, areolis paulo monticulosis, 1M 2M discretis, 2M subdivisâ, fronte fere recto, emarginato, margine antero-laterali tenui, leviter 4-lobato, lobis tribus posticis fere æquis. Pedes antici æqui, non carinati, manu carpoque tuberculatis, tuberculis cum granulis acervatis instructis; manu extus partim seriatim granulatâ. Pedes 8 postici bene carinati, carinâ articulorum 3tii 4tique prope apicem profundè incisâ, tarso sparsim hirsuto. *Hab.* mari Suluensi. *Long.* carapacis 2·6'''; *lat.* 3·9'''.

Zozymus lævis.—Carapax latus, lævis, paulo nitidus, areolis plerisque obsoletis, 2L et 1M prominulis, margine antero-laterali dilatato et tenui, obsoletè 2—3-lobato, dente nullo. Pedes antici æqui, inermes, manu latâ supra rotundatâ, digito mobili valde uncinato. Pedes postici subcristati, fere nudi. *Hab*, freto "Balabac." *Long.* carapacis 5·1'''; *lat.* 9'''.

Genus Carpilodes, *Dana*.

Carapax latus, undique convexus, nudus, marginibus crassè rotundatis. Pedes nudi, fere læves et subcylindrici. Aliis *Zozymo* similis. *Carpilio Liomeræque* habitu affinis sed digitis cochleariformibus differt.

Carpilodes tristis.—Carapax latior, latè subrhombicus, lævis, non nitidus, antice sat areolatus, areolis 1M 2M conjunctis, 2L 3L conjunctis, 4L 5L 6L conjunctis; fronte brevi, fere recto, levissimè emarginato; margine antero-laterali 4-lobato, lobis rotundatis; latere postero-laterali recto, convexo. Pedes antici æqui, breves et parvi, nudi et inermes, læves. Pedes postici vix compressi, nudi. *Hab.* archipelago Paumotensi? *Long.* carapacis 6·15'''; *lat.* 10·5'''.

Genus Actæodes, *Dana*.

Carapax postice fere planus, versus margines anticum antero-lateralemque curvatim declivis. Digiti instar cochlearis excavati. Pedes 8 postici articulo 3tio non cristati. Typus *Zozymus tomentosus*. Actæâ differt, digitis plus minusve cochleariformibus.

1. *Carapax sive lævis sive vix granulatus, nec tomentosus.*

Actæodes areolatus.—Carapax bene areolatus, lævis areolâ 2M simplice, 1R 3R discretis, 1P vix circumscripta; margine frontali fere recto, emarginato; margine antero-laterali 5-dentato, dente 5to parce minore. Pedes antici æqui, manu extus parce rugatâ, digitis canaliculatis, 2—3-dentatis, digito mobili valde uncinato. Pedes postici paulo nudi, articulis compressis, 3tio supra fere acuto. *Hab.* insulam "Raraka" Paumotensem. *Long.* carapacis 2¼'''; *lat.* 3'''.

Actæodes faba.—Carapax transversim ellipticus, valde convexus, non granulosus, antice bene areolatus, regione posticâ simplicissimâ, cum regione postero-laterali coalitâ, areolâ 2M fere bisectâ, areolis 2L 3L coalitis, superficie areolarum planâ; fronte inter-antennali fere recto, medio parce emarginato, margine antero-laterali parce expanso, 5-angulato aut obsoletè 5-dentato. Pedes antici mediocres, carpo manuque subtiliter erosis et interdum areolatis, digitis inermibus. Pedes 8 sequentes fere nudi, compressi, articulo 3tio supra paulo carinato, articulis 4to 5toque paulo granulosis. Abdomen *maris* 5-articulatum, *feminæ* 7-articulatum, nudum præter marginem ciliatum. *Hab.* ad insulas "Cape Verdes." *Long.* carapacis 3¼'''; *lat.* 5'''.

Actæodes bellus.—Carapax latior, antice bene arcuatus, non nitidus, lævis, antice et lateraliter subtilissime granulosus, antice areolatus, sulcis angustis, areolis 1M 2M conjunctis, 4L 5L 6L regioneque postero laterali totis conjunctis; fronte fere recto, emarginato; margine antero-laterali crasso, 4-lobato, lobis 3 posticis dentiformibus, obtusis. Pedes antici æqui, manu supra rotundatâ, extus subtiliter granulosâ, granulis partim seriatis, digitis canaliculatis, carpo intus obtuso. Pedes 8 postici sat compressi, fere nudi. *Hab.* ad insulas Samoenses, quoque insulam "Wakes." *Long.* carapacis 3¼'''; *lat.* 5½'''.

2. *Carapax granulatus aut tomentosus.*

Actæodes affinis.—A. *tomentoso* areolis affinis, areolâ cardiacâ fere bisectâ. Carapax paulo angustior, minutius granulosus, parce tomentosus. Margo antero-lateralis 4-dentatus. Digiti manus spinulosi, spinulus majoribus quam in *tomentoso* et paucioribus. Maxillipedes externi nudi, læves. Abdomen sparsim pubescens. *Hab.* ad insulas Tahitienses. *Long.* carapacis 5¼'''; *lat.* 7¼'''. Granulæ in dimidio utroque areolæ cardiacæ numero 40; sed *tomentosi* ferme 12.

Actæodes speciosus.—Carapax paulo angustior, undique granulosus, fere nudus, pilis interstitialibus brevioribus quam granuli, antice bene areolatus, sulcis perangustis, subtiliter tomentosis, areolis planis, areolâ 2M partim subdivisâ, 3M tripartitâ, margine antero-laterali bene 4-lobato, postero-laterali concavo, brevi. Pedes toti omnino granulosi et fere nudi, marginibus non ciliati, manu carpoque superficie irregulariter areolatis; manu granulis seriatis extus ornatâ, digitis perbrevibus, instar cochlearis malè excavatis, digito mobili clauso fere verticali, articulo 4to pedum 2di 3tii 4tique superficie tripartito. *Hab.* ad insulas Samoenses. *Long.* carapacis 3⅜'''; *lat.* 5'''.

Actæodes cavipes.—Carapax latior, infra omnino villosus, supra fere nudus, granulosus, omnino areolatus, sulcis nudis aut vix tomentosis, areolis minute granulosis, valde convexis et paulo irregularibus, 2M subdivisâ, 3M tripartitâ, margine antero-laterali irregulariter 5-dentato. Pedes granulosi, antici subæqui, manu carpoque partim granulosis et superficie cavernosis, manu extus seriato-granulosâ, subtiliter tomentosâ, digitis malè excavatis, scabris, striatis, partim subtiliter tomentosis; postici paulo hirsuti, articulis 4to 5toque supra valde cristato, cristâ integrâ, lunulatâ, sublaterali, hâc cristâ et margine pedis superno cavitatem grandem includentibus. *Hab.* ad insulas Vitienses et Samoenses. *Long.* carapacis 5'''; *lat.* 7¾'''.

Actæodes spongiosus.—Carapax postice vix areolatus, areolâ 2M subdivisâ, superficie, sulcis exceptis, breviter et rigidè velutinâ, aspectu spongiosâ; margine antero-laterali simplicissimè 5-dentato, dentibus gracilibus, acutis. Pedes breviter rigideque pubescentes, antici paulo armati. *Hab.* mari Suluensi. *Long.* 2¼'''; *lat.* 3¼'''.

Genus Chlorodius, *Leach.*

Subgenus Chlorodius.

Carapax transversus. Articulus antennarum externarum 1mus fissuram orbitæ fere implens.

1. *Carapax antice posticeque areolatus, areolâ 2M bipartitâ. Articulus pedum posticorum 3tius supernè spinulosus.*

Chlorodius monticulosus.—*C. ungulato* affinis, areolis valde distinctis, margine antero-laterali 5-dentato, fronte inter-antennali 4-lobato, pedibus 8 posticis paulo pubescentibus et supra spinulosis. Areola 2M decomposita, 4L plus minusve divisa. Pedes antici tuberculis parvulis subacutis armati, digito mobili inermi. Segmentum abdominis *maris* penultimum parce oblongum. *Hab.* ad insulas Vitienses, Tahitienses, Samoenses, et in freto "Balabac." *Long.* carapacis 8''' ; *lat.* 11½'''. *T. ungulati* tuberculi manus obtusi, areolæque carapacis vix decompositæ.

2. *Carapax antice areolatus, postice planus aut imperfecte divisus, areolâ 2M non subdivisâ. Pedes antici inermes; articulus pedum 8 posticorum 3tius supra non spinulosus.*

Chlorodius nudipes.—Carapax non nitidus, antice bene areolatus, postice fere planus, areolâ 2M non omnino divisâ, 3L 4L sejunctis, 1P 2P coalitis aut vix sejunctis, fronte emarginato, juxta antennas saliente, margine antero-laterali 10—11-denticulato, uno dente pone S. Pedes toti nudi; antici crassi, manu carpoque supra subtiliter exesis, carpo spinâ brevi intus armato. Pedes 8 postici sat breves, articulo 3tio dorsum non acuto. *Hab.* ad insulam "Mangsi," freti "Balabac." *Long.* carapacis 4½''' ; *lat.* 7½'''.

Chlorodius sanguineus, *Edwards.*—*Hab.* ad insulas Vitienses, Paumotenses, Hawaienses. Margo antero-lateralis 7-dentatus, dente uno pone S.

Chlorodius exaratus, *Edw.*—*Hab.* mare Pacifico. Margo antero-lateralis 5—6-dentatus, dente pone S carens. Hic pertinet *Chlorodius Floridanus*, Gibbes, (Proc. Amer. Assoc. iii. 175,) insulâ "Key West" lectus.

Chlorodius gracilis.—*C. sanguineo* affinis. Carapax non nitidus, antice areolatus, postice non areolatus, sulcis non profundis, areolis 2R 3R non discretis, margine antero-laterali 5-dentato, dentibus bene regularibus. Manus carpusque crassi, læves, nec rugati nec exesi. Pedes 8 postici compressi, inermes, pubescentes. *Hab.* ad insulam "Wakes." *Long.* carapacis 5''' ; *lat.* 7½'''.

Chlorodius nodosus, *D.*—Etisus nodosus, *J. W. Randall*, (Jour. Acad. Nat. Sci. Philad. viii. 111.)—*Sanguineo* fermè affinis; sed pedes 8 postici fere nudi, margine articuli 3tii antico omnino nudi; tarsus supernè nudus; carapax superficie punctatus; et areola 2M depressione V-formi antice notata.

Chlorodius cavipes.—Carapax non nitidus, latere rotundatus, superficie antice areolatus, areolis partim granulosis et imbricato-granulosis; fronte fere recto, emarginato, margine antero-laterali crassiusculo, 8—9-dentato, dentibus D, d, E, E′, N (vel N, N′,) T, S, s, totis parvulis, D vix saliente. Pedes antici inæqui, valde granulosi et corrugati, manu infra breviter villosâ et granulosâ, digito mobili canaliculato, supra denticulato. Pedes 8 postici paulo asperati, articulo 3tio breviter pubescente, 4to bene bicristato, cristis tenuibus cavitatem elongatam includentibus, 5to tarsoque omnino breviter hirsuto, tarso brevi. *Hab.* ? *Long.* carapacis 7''' ; *lat.* 10½'''.

3. *Carapax postice non areolatus antice vix areolatus, fere planus aut paulo convexus, 5L 6L nunquam circumscriptis.*

Chlorodius cytherea.—*C. nigro affinis.* Carapax fere lævis, areolis medianis indistinctis, antero-lateralibus melioribus, angulatis, margine antero-laterali 5-dentato, dentibus N T subacutis, E S minoribus, T valde prominentiore quam S ideoque carapacis latitudine T majore quam latitudo S. Pedes antici ac in *C. nigro*, digitis nigris, fere contiguis. Pedes 8 postici inermes, margine pubescentes. *Hab.* ad insulas Paumotenses, Tahitienses et Hawaienses. *Long.* carapacis 3½''' ; *lat.* 5½'''. *C. nigro* differt, dente S multo minus prominentiore quam dens T; dente E distincto, dentibus quinque conspicuis; areolis 1L 3L 4L plus angulatis et non lævibus, nec cum dentibus bene continuatis ac in *nigro*.

An *C. hirtipes*, Adams et White, (Crust. Samarang p. 40, tab. 11, f. 4,) *C. nigro* differt.

Chlorodius nebulosus.—*C. nigro* affinis. Carapax lævis, antice obsoletè areolatus, fronte parce emarginato, regione antero-laterali 4-dentato (D, N, T, S,) dentibus tribus posticis acutè spiniformibus. Pedes antice subæqui, sat breves, brachio paululum saliente, carpo subtiliter granulato, intus acuto aut subacuto, manu compressâ, lævi, digitis paulo canaliculatis. Pedes postici mediocres, paulo pubescentes. *Hab.* mari Suluensi. *Long.* carapacis 2·2'''; *lat.* 3'''.

Chlorodius lævissimus.—*C. nigro* affinis. Carapax perlævis, nec ad medium nec versus latera areolatus, margine antero-laterali 4—5-dentato, dentibus N et T paulo remotis, E sæpe obsoleto, S minore, T et S obtusis, carapacis latitudine T majore quam latitudo S. Pedes antici longi, pervalidi, læves, digitis multo hiantibus. Pedes 8 postici paulo pubescentes. *Hab.* ad insulas Hawaienses.

Subgenus Pilodius, *Dana.*

Pilumno aspectu fere similis; pedibus antennisque *Chlorodio* affinis. Articulus antennarum externarum 1mus brevior, processum frontis oblongum attingens ac in *Xanthode.* Articulus maxillipedis externi 3tius paulo transversus, subrectangulatus. *Chlorodius pilumnoides*, White, hic pertinet.

Pilodius pubescens.—*P. pilumnoidi* similis. Carapax breviter pubescens, antice leviter areolatus, margine antero-laterali simplicissimè 5-dentato, dentibus tenuibus, acutis. Pedes antici validi, minutè tuberculati et pubescentes, digitis subspinulosis, brachio antice dentigero. Pedes 8 postici pilosi, articulo 3tio supra spinuloso. *Hab.* freto Balabac. *Long.* carapacis 3⅓'''; *lat.* 5⅓'''.

Pilodius nitidus.—Carapax bene nitidus, antice optimè areolatus, areolis plerisque superficie planis, 1R 2R sulco discretis, areolâ 1R 2 3ve tuberculis antice ornatâ; margine antero-laterali bene 5-dentato, dentibus duobus posticis acutis. Pedes antici spinis valde armati, digito mobili prope basin interdum spinuloso, carpo duabus spinis tenuibus acutis intus armato. Pedes 8 postici pubescentes, articulo 3tio supra armato. *Hab.* ad insulam "Tutuila" Samoensem. *Long.* carapacis 3⅓'''; *lat.* 5'''.

Pilodius pugil.—*P. nitido* affinis. Carapax paulo nitidus, antice areolatus, postice fere planus, areolis 5L 6L discretis, 1L 2L 3L subconicis, 1R 2R paulo discretis; margine antero-laterali 4-dentato, dente E fere obsoleto, dentibus tribus posticis valde acutis. Pedes antici validi, manu carpoque bene tuberculatis, tuberculis plerumque conicis, manus minoris spiniformibus, angulo carpi interno duabus spinis tenuibus acutis armato, brachio apicem anticum spinoso. Pedes postici pilosi, articulo 3tio supra armato. *Hab.* ad insulas Samoenses; quoque in freto "Balabac." *Long.* carapacis 2⅓'''; *lat.* 4'''. An var. *nitidi.*

Pilodius scabriculus.—Carapax fronte latus, antice leviter areolatus, paulo scabriculus, areolis 1L 3L 4L subacutis et scabriculis, margine antero-laterali fere longitudinali, 4-dentato (dente E fere obsoleto), dentibus tribus (N T S) acutis, spiniformibus. Pedes antici fere æqui, manu carpoque subtillissimè tuberculatis, tuberculis partim seriatis, digitis canaliculatis, paulo scabriculis, articulo 3tio anticè denticulato. Pedes postici sparsim pubescentes, articulo 3tio supra minutè spinuloso, tarso longo. *Hab.* in freto "Balabac;" quoque insulâ "Raraka" Paumotensi. *Long.* carapacis 1·7''', et *lat.* 2·6'''; alterius *long.* 2⅓''', et *lat.* 4'''.

Subgenus Cyclodius. *Dana.*

Chlorodio affinis, carapace angustiore, suborbiculato, articulo maxillipedis externi 3tio subtriangulato, paulo transverso, latere interno brevissimo. Articulus antennarum externarum 1mus *orbitæ* fissuram fere implens, ac in *Chlorodio*, *Pilodio* dissimilis.

Cyclodius ornatus.—Carapax nudus, parce nitidus, antice posticeque valde areolatus, areolis sæpe compositis, 2M subdivisâ 3M tripartitâ; margine anterolaterali 5-dentato, dentibus tumidis, apiculatis, dente E minore, rotundato, D obtuso. Pedes spinulis armati, 8 posticis parce pubescentibus, manu seriatim spinulosâ, digitis spinulosis. *Hab.* mari Suluensi. *Long.* carapacis 3⅓'''; *lat.* 4⅓'''.

Cyclodius gracilis.—*C. ornato* aspectu areolisque similis. Parce latior, dentibus antero-lateralibus tribus posticis tenuioribus et bene acutis, areolis vix compositis, 2M subdivisâ, 3M vix tripartitâ. Pedes armati, 8 posticis paulo pubescentibus, manu seriatim spinulosâ digitis spinulosis. *Hab.* ad insulas Samoenses. *Long.* carapacis 3''' ; *lat.* 4'''.

Subfam. POLYDECTINÆ.

Genus Polydectus, *Edwards*.

Polydectus villosus.—Carapax pedesque densissimè villosi, pilis plumiformibus, fronte margineque antero-laterali integris. Digitus mobilis paris antici duabus spinis elongatis remotis armatus, et alter spinis tribus. Antennæ externæ fronte vix longiores, flagello 10-articulato. *Hab.* ad insulam "Raraka" Paumotensem. *Long.* carapacis 4'''.

Fam. ERIPHIDÆ.

Genus Galene, *De Haan*.

Subfam. OZINÆ.

Galene Hawaiensis.—*G. natalensi* fermè affinis. Pedes 8 postici sat graciles, articulo 3tiò supra paulo pubescente, sequentibus pubescentibus. Margo antero-laterali 4-dentato, dentibus 2 anticis obtusis, anteriore marginem paulò excavato. *Hab.* ad insulas Hawaienses. *Long.* carapacis 7½''' ; *lat.* 10½'''. An. varietas *natalensis*, Krauss (Crust. Südaf. p. 31. tab. 1, f. 4.)

Genus Pseudozius, *Dana*.

Carapax plus minusve transversus, margine antero-laterali breviore, quam postero lateralis. Articulus antennarum externarum 1mus angustus et brevis, frontem non attingens (eoque *Menippi* affinis.) Area prælabialis lineâ elevatâ utrinque bene divisa (eoque *Ozio* affinis.) Digiti acuminati.

Pseudozius planus.—Carapax latus lævis fere planus, non areolatus, antice prope marginem leviter impressus ; fronte fere recto paulo emarginato, margine antero-laterali paulo acuto, fere integro levissimè 4-lobato, margine postero-laterali paulo recto. Pedes antici paulo inæqui, læves et nudi, carpo non rugato, manu supra rotundatâ, digitis sat longis non canaliculatis, digito mobili prope basin armato cum dente crasso obliquo. Pedes postici fere nudi, tarso hirsuto. *Hab.* ad insulas Paumotenses ; quoque ad insulam "Wakes." *Long.* carapacis 5·5''' ; *lat.* 9'''.

Pseudozius inornatus.—*P. Plano* carapace affinis. Carapax paulo latior, prope marginem anticum abruptus impressus, margine antero-laterali distinctius 4-lobato. Pedes antici inæqui carpo leviter rugato. Pedes postici latiores, articulo penultimo supra sparsim hirsuto, tarso hirsuto. *Hab.* ad insulas Hawaienses. *Long.* carapacis feminæ ovigeræ 6½''' ; *lat.* 11½'''.

Pseudozius dispar.—Carapax augustus, lævis, paulo nitidus, omnino usque ad frontem nec areolatus nec inæqualis, fronte fere recto leviter emarginato ; margine antero laterali levissimè 3-dentato, dentibus non salientibus. Pedes antici inæqui, major crassus, lævis, nudus, manu supra rotundatâ, manu minore minutè tuberculatâ, tuberculis partim paulo seriatis. Pedes postici fere nudi, paucis pilis sparsis. *Hab.* in mari Suluensi. *Long.* carapacis feminæ 3·3''' ; *lat.* 4'''.

Genus Pilumnus, *Leach*.

Pilumnus globosus.—Carapax valde convexus, subglobosus ; parce transversus, non areolatus, vix granulosus, breviter pubescens, fronte emarginato, margine antero-laterali fere integro, dentibus minutis tribus vel quatuor granuliformibus, isolatis. Pedes antici crassi, inæqui omnino hirsuti et minutè tuberculati, tuberculis nullis seriatis. Pedes 8 postici omnino hirsuti. *Hab.* ad insulam "Tahiti ;" quoque insulas "Waterland" et "Raraka." *Long.* carapacis 5½''' ; *lat.* 6½'''.

Pilumnus lævimanus.—Carapax convexiusculus, non areolatus, antice vix lævis, fronte emarginato ; margine antero laterali 3-dentato angulo orbitæ externo vix prominente excluso, dentibus minutis, non acutis. Pedes antici valde inæqui, carpo obsoletè tuberculato, manu majore crassâ, nudâ, lævi, extus non costatâ, minore hirsutâ et minute tuberculatâ. Pedes 8 postici partim hirsuti. *Hab.* in freto Balabac. *Long.* carapacis maris 3'''; *lat.* 3·9'''.

Pilumnus lævis.—*P. lævimano* affinis, latior. Carapax omnino lævis, nitidus, non areolatus, convexiusculus; fronte emarginato; margine antero-laterali 3-dentato, dentibus minutis spiniformibus, posteriore minimo, angulo orbitæ externo non prominente. Pedes antici valde inæqui, carpo lævi, non obsolete tuberculato, manu majore omnino lævi, minore sparsim hirsutâ non tuberculatâ. Pedes 8 postici tenues, paulo hirsuti. *Hab.* in freto "Balabac." *Long.* carapacis feminæ 2·1'''; *lat.* 2·95'''.

Pilumnus calculosus.—Carapax convexiusculus, antice non areolatus, paulo inæqualibus et pubescens, fronte emarginato, margine antero-laterali perbrevi, 4-dentato, dente postico minimo, ceteris crassiusculis; margine orbitali inferiore 3-dentato. Pedes antici subæqui, carpo tuberculis paucis grandibus elongatis nudis complanatis armato et inter hos tuberculos hirsuto, manu supra quoque armatâ. Pedes 8 postici hirsuti, articulis 4to 5toque supra gibbosis. *Hab.* ad insulam Madeira (?) *Long.* carapacis 3¼'''; *lat.* 4¼'''.

Pilumnus tenellus.—Carapax pedesque toti subtilissime tomentosi. Carapax convexiusculus non areolatus, fere quadratus, paulo transversus; fronte emarginato; margine antero-laterali perbrevi, 3-dentato, dentibus minutis spiniformibus, posteriore minimo. Pedes antici non tuberculati, 8 postici longi et pertenues, filiformes, tarso subtilissimé pubescente. *Hab.* mari Suluensi. *Long.* carapacis 2·4'''; *lat.* 3'''.

Pilumnus mus.—*P. ursulo* affinis, carapace pedibusque dense crasseque lanatis, capillis longis tubulatis. Carapax parce granulatus. Frons fimbriâ longa ornatus. Margo antero-lateralis crassè tridentatus, dente altero brevi inter duos anteriores infra insito. Pedes antici inæqui, manu minutè tuberculatâ, tuberculis superficei externæ seriatis. *Hab.* ad insulas Samoenses vel Tongenses. *Long.* carapacis 11½'''; *lat.* 16'''.

Subfam. ACTUMNINÆ.

Genus Actumnus, *Dana*.

Carapax angustus, valde convexus, fronte et lateribus curvatim declivis. Area prælabialis lineâ elevatâ longitudinali utrinque bene subdivisa. Articulus antennarum externarum 1mus processum frontis oblongum attingens tantum. Digiti breves, instar cochlearis excavati.

Actumnus tomentosus.—Carapax angustus, convexus, subglobosus, subtiliter tomentosus, antice leviter partim areolatus, fronte emarginato; margine antero-laterali leviter 4-lobato, margine postero-laterali concavo, lævi. Pedes antici crassi, subæqui, subtilissimè tomentosi, minutè tuberculati, digitis brevibus, dentibus eorum contiguis et non hiantibus. Pedes 8 postici æque tomentosi, posteriores paulo dorsales. *Hab.* ad insulam "Upolu" vel "Tahiti." *Long.* carapacis 4·1'''; *lat.* 5·1'''.

Actumnus obesus.—Carapax maximè convexus, suborbicularis, anticé leviter areolatus, areolis planis, granulosis, 2M non subdivisâ, granulis nudis, interstitiis el sulcis subtilissimè velutinis; fronte paululo producto, emarginato; margine antero-laterali arcuato, fere integro, lævissimè 4-lobato, lobis minutè denticulatis; margine postero-laterali valde concavo. Pedes antici crassi, manu acie supra instructâ, valde granulosâ, granulis vix seriatis, superioribus paulo elongatis et acutis, digito mobili spinuli-granulato, pollice perbrevi. Pedes 8 postici valde compressi, minutè velutini, marginibus hirsutis. *Hab.* prope insulam "Maui" Hawaiensem. *Long.* carapacis 6¼'''; *lat.* 8½'''.

Subfam. ERIPHINÆ.

Genus Eriphia.

Eriphia scabricula.—Carapax partim scabriculus, areolâ 3M circumscriptâ, 2M 1M 2F coalitis, non transversim rugatis, regione antero-laterali non areolatâ;

fronte integro, subtillissimè denticulato; margine orbitali nec infra nec supra spinuloso, (angulo orbitali excluso.) Pedes antici omnino scabriculi, manu carpoque pubescentibus, digito mobili cum dente basali paulo grandi armato. Pedes antici subtenues, paulo hirsuti. *Hab.* ad insulas Vitienses et Tahitienses, quoque in mari Saluensi. *Long.* carapacis maris 6½'''; *lat.* 10'''.

Eriphia armata.—Mediocriter crassa. Carapax antice transversim paulo rugatus, margine areolarum 1M 2M et 5L per rugam granulosam conspicuis, areolâ 2L 3L circumscriptâ, spinosâ; fronte paulo deflexo, emarginato, denticulato, denticulis parvulis conicis, regione orbitali internâ 1—2-spinosâ, ejus margine externo 2—3-spinoso, margine superno subtiliter denticulato; margine antero-laterali carapacis subacuto, 5-spinoso (spinis orbitæ exclusis), spinis acutis. Pedes antici spinulis valde armati et extus hirsuti, manu majore extus seriatim spinulosâ, infra lævi, digito ejus mobili cum dente magno obliquo infra armato. Pedes postici hirsuti. *Hab.* juxta portum "Rio Negro," Patagoniæ Orientalis. *Long.* carapacis 9½'''; *lat.* 13½'''.

Genus Trapezia, (*Latreille*,) *Dana*.

1. *Latera carapacis inermia.*

Trapezia speciosa.—Frons fere integer, versus oculos et ad medium obsoletè emarginatus. Pedes antici subæqui, carpo supra obtuso, articulo 3tio apicem internum acuto (rectangulato) et marginem internum denticulato, denticulis subquadratis minutis. Pedes 8 postici toti tenues, articulis 3tio et sequentibus perangustis, subcylindricis. *Hab.* ad insulam "Carlshoff" Paumotensem. *Long.* 2½'''. Carapax carneus, lineis paucis rubris latissimè areolatus.

Trapezia bella.—Frons subinteger, obsoletè sinuosus, crenaturis sex obsoletis. Pedes antici subæqui, nudi, carpo obtuso, articulo 3tio apicem internum acuto (rectangulato), marginemque regulariter serrulato, denticulatis triangulatis. Pedes 8 postici graciles, articulis 3tio et sequentibus subcylindricis. *Hab.* ad insulam "Carlshoff." *Long.* 2½''', Carapax carneus rubro punctulatus. An varietas *speciosæ?*

2. *Latera carapacis dente armata.*

Trapezia areolata.—Frons sinuosus, angulo orbitæ inferiore interno subacuto. Pedes antici mediocres, margine articuli 3tii interno serrato, dente apicali curvato, carpo angulum internum acuto. Pedes 8 postici sat breves, sparsim pubescentes, tarso paulo breviore quam articulus precedens. Carapax colore brunneo latè areolatus. *Hab.* ad insulam "Tahiti." *Long.* carapacis 3½'''; *lat.* 4'''. *T. dentata* (M'Leay) affinis, an varietas alia. Forsan varietas *T. ferruginea*.

Genus Tetralia, *Dana*

Trapeziæ affinis. Frons subtilissimè denticulatus. Pedes antici breviores, brachio apicem paulo exserto, pollice valde deflexo; 8 postici extremitate breviter unguiculati. Maxillipedes externi margine postico valde obliqui et non transversi, apicibus internis articulorum 2dorum inter se paulo remotis. Abdomen *maris* 7-articulatum. *Trapezia* differt, brachio longe exserto; pedibus 8 posticis non unguiculatis; maxillipedibus externis margine postico fere transversus; fronte leviter 6—8-lobato, non bene subtilissimè denticulatis. *Trapeziæ glaberrima*, Herbst, et *digitalis* Edw. veræ Tetraliæ sunt.

1. *Latera carapacis inermia.*

Tetralia nigrifrons.—Frons subtiliter denticulatus parce sinuosus, medio obsoletè bilobatus. Pedes antici valde inæqui, carpo intus spini-acuto. Pedes 8 postici fere nudi, articulo 3tio paris postici latissimo, sesqui longiore quam lato, fere triplo latiore quam articulus 5tus. *Hab.* ad insulam "Honden" Paumotensem. *Long.* 2—3'''. Carapax albus margine antico nigro. Pedes fusci.

2. *Carapacis latus spinâ armatum.*

Tetralia armata.—Frons subtilissime denticulatus, non sinuosus. Pedes antici inæqui, manu extus prope basin pubescente, carpo spinis duabus intus armato, articulo 3tio prope apicem internum 4 denticulis tenuibus ornato. Pedes postici mediocres, articulo 3tio paulo angusto. *Hab.* ad insulam "Tongatabu." *Long.* 2'''.

Genus QUADRELLA, *Dana*.

Carapax sat convexus, lævis, subquadratus, margine laterali fere longitudinalis fronte lato, horizontali, regulariter spinoso, oculis ad angulos insitis. Articulus antennarum externarum 1mus perbrevis, secundo non longior, frontem non attingens, margine orbitæ hiatu carenti exclusus. Pedes longi, posteriores graciles, tarsis unguiculatis.

QUADRELLA CORONATA.—Carapax lævis, lateribus paululum arcuatis et medio uni-spinosis, dentibus frontis sex medianis paulo longioribus externis perbrevibus, dente infra-orbitali elongato. Pedes antici elongati, manu angustâ, triplo longiore quam corporis dimidium, inermi, lævi, carpo intus 2-spinoso, brachio ad marginem anticum bene 7-spinoso. Pedes postici graciles, fere cylindrici, articulis subtilissimè pubescentibus, articulo 5to marginibus parce pubescenti, tarso infra spinuloso. *Hab.* mari Suluensi. *Long.* carapacis et *lat.* 3½'''. *Long.* manus 5½'''; digiti mobilis 2½''', brachii 3¼'''.

Fam. PORTUNIDÆ.

Subfam. LUPINÆ.

Genus LUPA, Leach.

LUPA PUBESCENS.—Carapax valde convexus, angustior, subtiliter granulatus, breviter hirsùtus; fronte angusto, dentibus quatuor subæquis, parvulis, dente præorbitali prominentioribus, emarginatione medianâ profundiore; margine antero-laterali 9-dentato, dente postico plus duplo longiore. Pedes antico breviores, non crassiores, hirsuti, brachio antice trispinoso, et apice postico non armato, manu supernè trispinosâ, costis valde prominentibus, digito manus majoris mobili cum dente crasso obliquo basali armato. *Hab.* ad insulam "Maui" Hawaiensem. *Long.* carapacis 13'''; *lat.* dentibus lateralibus longis inclusis 20'''.

Genus AMPHITRITE, (*De Haan*) *Dana*.

1. *Dens lateralis non elongatus.*

AMPHITRITE SPECIOSA.—Carapax areolatus, parce transversus, nudus, granulatus, fronte inter-antennali 5-dentato, dente mediano minutissimo, triangulato, proximo non prominente, remotiore prominente, obtuso; margine antero-laterali paulo arcuato, 7-dentato, dentibus alternatim paulo minoribus. Pedes antici sat validi, brachio postice 2-spinoso, antice 4-spinoso, carpo 2-spinoso, manu breviore quam latitudo carapacis, 2-spinosâ spinâ anteriore brevissimâ et vix conspicuâ. Areola carapacis cardiaca bipartita; intestinalis grandis, tripartita, parte medianâ fere lineari. *Hab.* ad insulas Vitienses. *Long.* carapacis 8'''; *lat.* 11¼'''.

2. *Dens lateralis valde elongatus.*

AMPHITRITE LONGI-SPINOSA.—Carapax areolatus, paulo transversus, spinâ laterali diametro carapacis non duplo breviore, paulo reflexâ, dentibus antero-lateralibus numero quinque (angulo orbitæ excluso), minutis non contiguis, inter se subæquè remotis, fronte inter-antennali 4-dentato, dentibus medianis minutis, exterioribus prominenter triangulatis. Pedes antici mediocres, manu supernè 3-spinosâ, carpo 2-spinoso, brachio apice externo uni-spinoso, margine antico 3-spinoso. *Hab.* ad insulas Vitienses. *Long.* carapacis 3'''; *lat.* spinis longis lateralibus inclusis 6¾'''; long. spinæ longæ 1½'''.

AMPHITRITE VIGILANS.—Carapax areolatus, paulo transversus, granulatus, spinâ laterali fere triplo breviore quam latitudo carapacis, dentibus parvulis antero-lateralibus numero sex (angulo orbitæ excluso), quatuor posterioribus, duobus anterioribus; fronte 4-dentato, dentibus duobus medianis minutis, exterioribus prominenter triangulatis. Pedes antici mediocres, manu supernè 3-spinosâ, carpo 2-spinoso, brachio apice externo uni-spinoso, margine antico

4-spinoso. *Hab.* ad insulas Vitienses et Hawaienses. *Long.* carapacis 7'''; *lat.* spinis longis lateralibus inclusis 14'''.

Genus CARUPA, *Dana*.

Pedes antici sequentibus vix longiores, 2di 3tii 4tique longi, gracillimi, tarso valde tenui, 5ti bene natatorii, tarso elliptico. Articulus antennarum externarum 1mus cylindricus, sequenti similis. Carapax transversus.

CARUPA TENUIPES.—Carapax transversus, non areolatus, lævis, granulatus, nudus, fronte integro, medium paululo emarginato, margine antero-laterali 7-dentato, dentibus acutis, subæquis, dente 5to minimo; margine orbitali inferiore 4-lobato. Pedes antici breves, manu non armatâ, brachio antice 3-spinoso, spinâ medianâ majore. Pedes sex proximi gracillimi, nudi, tarso longissimo. Pedes postici breviores, tarso oblongo, elliptico, apice breviter uni-spinoso. *Hab.* in archipelago Paumotensi. *Long.* carapacis 2½'''; *lat.* 3½'''.

Genus THALAMITA, (*Latr.*), *DeHaan*.

1. *Frons subinteger.*

THALAMITA INTEGRA.—Carapax convexior, glaber, nitidus, regione medianâ lineis elevatis non intersectâ, fronte paulo arcuato, lobo præorbitali longo et marginem recto, et paululo elevato, margine antero-laterali 5-dentato, dentibus acutis, 4to minuto. Articulus antennarum externarum 1mus prælongus, cristâ longâ integrâ. Pedes antici breves, manu nitidâ, omnino lævi, extus non costatâ, superne breviter 3-spinosâ, spinâ unâ in margine superno ad medium insitâ, secundâ in lineâ parallelâ externâ, tertiâ juxta basin. *Hab.* ad insulas Paumotenses et Hawaienses.

2. *Frons multilobatus.*

THALAMITA SPINIMANA.—Carapax valde transversus, regione medianâ lineis elevatis intersectâ, margine antero-laterali æque 5-dentato, dentibus longis, acutis, curvatis, lobis frontalibus prominentibus, 2do latiore quam 3tius, lobo præorbitali elongato et valde prominente. Articulus antennarum externarum 1mus prælongus, cristâ irregulariter spinulosâ. Pedes antici valde armati, carpo 6-spinoso, manu 7—9-spinosâ (margine superno 4—5-spinoso) costis duabus externis cum spinulis obsoletis seriatis instructis. *Hab.* archipelago Vitiensi. *Long.* carapacis 19'''; *lat.* 27'''.

THALAMITA CRASSIMANA.—Carapax valde transversus, lævis, nitidus, regione medianâ 2 lineis elevatis intersectâ, fronte recto, lobis latis, perbrevibus, truncatis, 2do latiore quam 3tius, 3tio rotundato, lobo præorbitali longo, paululo prominente, margine antero-laterali 5-dentato, dentibus acutis, 3tio non breviore, 4to brevissimo. Articulus antennarum externarum 1mus prælongus, cristâ irregulariter divisâ. Pedes antici crassi, manu paulo tumidâ, supernè 5-spinosâ, (margine superno spinis duabus medianis armato et apice nullâ), extus 2-costatâ, superficie minutè tuberculatâ, carpo 4-spinoso et minute tuberculato, brachio margine antico 3-spinoso. *Hab.* ad insulas Vitienses. *Long.* carapacis 19'''; *lat.* 27'''. Forsan *T. prymna*, DeHaan, (Faun. Jap. tab. 12, f. 1); non T. prymna, *Herbst et Edw.*

Genus CHARYBDIS, *DeHaan*.

CHARYBDIS ORIENTALIS.—Carapax lævis, regione medianâ 2—3 lineis elevatis intersectâ, fronte arcuato, dentibus valde obtusis, 3tio triangulato, margine antero-laterali 6-dentato, dentibus acutis, 2do minimo, postremo non longiore. *Hab.* ad insulam "Mindanao" Philippensem. *Long.* carapacis 15½'''; *lat.* 22'''.

CHARYBDIS AFFINIS.—*C. cruciferæ* affinis. Margo antero-lateralis 6-dentatus, dente postremo duplo longiore, primo truncato et emarginato. Carapax superficie subtiliter velutinus; frontis dentes subtriangulati, vix acuti. Manus supra 5-spinosa extus 3-costata; brachium 3-spinosum, spinâ inferiore dimidio breviore. *Hab.* prope portum "Singapore." *Long.* carapacis 11½'''; *lat.* dentibus lateralibus inclusis 17½'''.

Genus Lissocarcinus, *White.*

Lissocarcinus orbicularis.—Carapax paululo latior quam longus, levissimus, nitidus, fronte medio parce angulato, integro, margine antero-laterali tenui, paulo reflexo, obsolete 5-lobato. Pedes antici perbreves, manu superne bicarinatâ, carinis integris, digito mobili supra bene carinato. Pedes 8 postici nudi, articulo 3tio superne obtuso, tarso pedis postici angustè subovato, apicem acuto et inflexo. *Hab.* ad insulas Vitienses. *Long.* carapacis 5'''; *lat.* 5½'''.

Fam. PLATYONYCHIDÆ.

Genus Platyonychus, *Latreille.*

Platyonychus purpureus.—*B. bipustulato* affinis. Carapax paulo transversus (latitudine quartâ parte majore); margine antero-laterali breviore, crassè 5-dentato; fronte 4-dentato, dentibus acutis, inter se non æque remotis, medianis propioribus. Pedes antici fere æqui, carpo granulis minutis reticulato et scabriculo, intus elongatè acuto, manu granulis asperatâ, inferne transversim pliculatâ. Pedes postici marginibus dense ciliati, articulo 3tio supernè non denticulato, tarso fere duplo longiore quam lato. Abdomen maris fere lineare, segmento penultimo basin non latiore. Carapax purpureo punctatus, regionis medianæ parte posteriore valde purpureus et sublunatus. *Hab.* juxta portum "Valparaiso," *Long.* carapacis 2'' 6'''; *lat.* 3'' 4'''.

II. CRUSTACEA CORYSTOIDEA.

Synopsis Generum Familiarumque Corystoideorum in Amer. Jour. Sci., Ser. 2dâ, v. xiii. p. 119, auctore edita, q. v.

Fam. TRICHOCERIDÆ.

Trichocera oregonensis.—Carapax transversus, convexus, gibbosus, granulosus, antice lateraliterque bene arcuatus, angulo laterali vix instructis, margine laterali (postero-laterali incluso) 13-dentato, dentibus regularibus, brevibus; margine postero-laterali recto; fronte inter-antennali brevi, recto, medium non emarginato. Pedes antici crassi, manu perbrevi, altâ, superne minute tuberculatâ, extus lævi et obsolete 5-costatâ. Pedes 8 postici pubescentes. *Hab.* freto Pugettensi Americæ occidentalis. *Long.* carapacis 8½'''; *lat.* 11'''.

Fam. THIIDÆ.

Genus Kraussia, *Dana.*

Kraussia rugulosa, *Platyonychus rugulosus* Krauss (Südaf. Crust. p. 26, tab. 1, f. 5) ad insulas Hawaienses lecta.

Fam. CORYSTIDÆ.

Genus Telmessus, White.

Telmessus serratus, White, in freto Pugettensi Americæ occidentalis lectus.

Genus Gomeza, *Gray.*

Gomeza serrata.—Carapax subovatus, scaber, breviter hirsutus, rostro apicem truncato, margine juxta apicem utrinque inciso, lateribus acute 5-serratis, serraturâ 4tâ fere medianâ, quoque subtilissimè denticulatis. Pedes marginibus pubescentes. *Hab.* mari prope Patagoniam orientalem. *Long.* carapacis 1¼'''.

The Committee on the following paper by Mr. Charles Girard, of Washington, reported in favor of publication in the Proceedings:

A Revision of the North American Astaci, with observations on their habits and geographical distribution.

By Charles Girard.

According to recent investigations,[*] the crawfishes or Astaci, have been distributed into several genera: thus, the genus *Astacus* properly includes all the species of Europe and Asia, and two of Australia; the genus *Astacoides* is composed of two species—one from Madagascar and the other from Van Diemen's Land; the genus *Cheraps* comprehends three species peculiar to New Holland; the genus *Engæus* embraces two species confined to Van Diemen's Land; and finally, the genus *Cambarus* includes the American species; one from Chili, another from Cuba, two from Mexico and six from the United States.

Investigations of a still more recent date,[†] the results of which have not yet been given to the scientific world, refer to the genus *Astacus*, a species from the Columbia river, thus giving again that genus to North America.

At the request of Dr. Baird, we have examined critically the Astaci preserved at the Smithsonian Institution, collected chiefly by himself. Our researches have made us acquainted with several new species within the limits of the United States, and which we now characterise briefly, deferring to another opportunity more full descriptions, accompanied with necessary graphic illustrations.

First group.—Rostrum subquadrangularly elongated, terminated anteriorly by three conical and acute spines, the two lateral smaller than the middle one, which forms the tip. Extremity of the anterior pair of abdominal legs (in the male) straight and acute.

1. Cambarus pellucidus, Erichs. Arch. f. Naturg. 1846, i. 95.
Astacus pellucidus, Tellk. in *Müll.* Archiv. 1844, 383.
Locality.—Mammoth Cave, Kentucky, (Tellkampf, &c.)

2. Cambarus affinis, Erichs. Arch. f. Naturg. 1846, i. 96.
Astacus affinis, Say, Journ. Acad. Nat. Sc. Philad. i. 1817, 168 and 443.—Harl. Med. and Phys. Res. 1835, 230, fig. 2.
A. Bartonii, M. Edw. Hist. Nat. Crust. ii. 331.
A. limosus, Rafin. Amer. Month. Mag. ii. 1817, 42.
Localities.—Schuylkill, at Reading (Baird), Delaware (Say and Rafinesque).

3. Cambarus oregonus, Erichs. Arch. f. Naturg. 1846, i. 375.
Astacus oreganus, Rand. Journ. Acad. Nat. Sc. Philad. viii. 1, 1839, 138, Pl. vii.
Locality.—Columbia River (Nuttall).

4. Cambarus Pealei, Girard.—Differs from *C. affinis* in having longer antennæ, and a broader area between the dorsal lines of suture of the carapace. The lateral spine of the rostrum are also much less developed. The color is greenish brown above, with small green dots on the claws, and sometimes on the cephalo-thorax. A green line or narrow band is observed along the outer edge of the big claws, the tips of which, as well as the tips of the other legs, are orange, preceded by a deep green, almost black circle or ring. On each articulation of the tail there is a double, irregular and transverse blood-red band, which extends to the lateral appendages of the caudal rings. Underneath, the body is white and rusty.
Locality.—Potomac, at Washington (D. C.)

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[*] Erichson (W. F.) Uebersicht der Gattung Astacus. — *Weigm.* Archiv für Naturgeschichte, 1846, i. 86.

[†] Proc. Acad. Nat. Sc. Philad. vi. 1852, 20.

5. CAMBARUS RUSTICUS, Girard.—Rostrum narrower than in both *C. affinis* and *C. Pealei*, and besides, concave on the sides. Terminal point shorter than in either of the preceding species; anterior pair of abdominal legs (in the male) elongated, slender, with their tip curved inwards, whilst the same tips are straight in *C. affinis*, and twisted in *C. pellucidus*. The dorsal area is broader than in *C. Pealei*.

Locality.—The Ohio, at Cincinnati.

6. CAMBARUS PROPINQUUS, Girard.—Closely allied to *C. affinis*, from which it differs, as well as from *C. Pealei*, by a proportionately shorter rostrum, and from *C. rusticus* by a much broader one. The area between the dorsal sutures of the carapace is still broader than in either *C. affinis*, *C. Pealei* or *C. rusticus*. There are also differences in the structure of the anterior pair of abdominal legs of the male.

Localities.—Lake Ontario, four miles from the shores, opposite to Oswego; found in the stomach of *Lota maculosa;* Garrison Creek, Sackett's Harbor; Four-mile creek, Oswego (Baird).

7. CAMBARUS FOSSOR, Girard.—*Astacus fossor*, RAFIN. Amer. Month. Mag. ii. 1817, 42.

This species we have not seen, but if Rafinesque's description is correct, "rostrum short, one toothed on each side," there can be no hesitation in referring it to this group. He further states that its vulgar name is "burrowing lobster," and that "it burrows in meadows and mill-dams, which it perforates and damages." This would indicate habits similar to a species of the second group, which we describe hereafter, under the name of *C. diogenes*. We cannot help, however, from expressing some apprehension that on the examination of authentic specimens from the same localities whence Rafinesque had obtained his, the rostrum should be found without lateral tooth, in which case the *C. fossor* might not differ from our *C. diogenes*.

Localities.—Virginia, Pennsylvania and New York (Rafinesque).

Second group.—Rostrum generally broad, conical and short, with margins entire and toothless, terminated anteriorly by an acute and comparatively short point. Anterior pair of abdominal legs (in the male) recurved on their extremity, the tip of which is rounded.

8. CAMBARUS BARTONII, Erich. Arch. f. Naturg. 1846, I, 97.

Astacus Bartonii, FABR. Ent. Syst. Suppl. 407.—LATR. Gen. Cr. and Ins. v, 240.—BOSC, Hist. Nat. Cr. II, 62, pl. II, fig. 1.—SAY, Journ. Acad. Nat. Sc. Philad. I, 1817, 167 and 443.—HARL. Med. and Phys. Res. 1835, 230, fig. 3.—GOULD, Rep. Inv. Mass. 1841, 330.—DE KAY, N. Y. Fauna VI, 1844, 22, pl. viii, fig. 25.

Astacus ciliaris, RAFIN. Amer. Month. Mag. II, 1817, 42.

Localities.—Foxburgh, Carlisle and Berwick (Pa.); New York (De Kay); Massachusetts (A. A. Gould). Brooks near Fishkill, Newburg, &c. (Rafinesque.)

9. CAMBARUS CAROLINUS, Erich. Arch. f. Naturg. 1846, I, 96.

Astacus affinis, M. EDW. Hist. Nat. Cr. II, 332.

Localities.—Carolina (Erichson); Anderson, S. C.

10. CAMBARUS MONTANUS, Girard.—Antennæ more elongated and more filiform than in *C. Bartonii*. Rostrum intermediate in shape between the latter and *C. carolinus*, being proportionally longer than in *C. Bartonii* and shorter and less tapering than in *C. carolinus*. Dorsal sutures of the carapace more apart than in both of the latter species.

Localities.—Within the Alleghany ranges in Virginia and Maryland: tributaries of James river in Rockbridge Co. (Va.); Shenandoah river in Clark Co. (Va.) and Cumberland (Md.) of the hydrographical basin of the Potomac; Sulphur Spring, Greenbrier river, an affluent of Kenhawa river (Va.) of the Ohio basin.

11. CAMBARUS DIOGENES, Girard.—Rostrum proportionally the most elongated and the most conical amongst all the species of this group. Dorsal lines of

sutures of the carapace almost contiguous. Body uniform yellowish brown above and below, greenish on the sides and on the claws, the tips of which are red.

This species, like *C. fossor*, burrows in the meadows. Such places we have visited in the neighborhood of the city of Washington, in order to study its peculiar habits. The holes, as they appear at the surface of the ground, are nearly circular, from seven-tenths of an inch to one inch and one inch and a half in diameter. The depth of the burrows varies according to the locations; this, we generally found to be from sixteen inches to two feet, and sometimes to three feet and more. The construction of the burrow itself is often exceedingly simple: from the surface of the ground the excavation exhibits a gradual slope in direction more or less undulating for a distance from five to ten inches, when it becomes vertical for six or eight inches, and then terminates in a sudden bottle-shaped enlargement in which the animal is found. The bottom of the burrow having no subterraneous communication, no other issue except towards the surface; it is entirely isolated from its neighbors, and leaves no chance for escape to its inhabitant. The same burrow may have several external holes connected with it, several inclined channels, which, however, meet at the depth where it becomes vertical. We found constantly the cavity full of water, but this was in March and April; the bottom, for several inches, was filled with soft and pulpy mud.

There are other instances of burrows somewhat more complex. Their direction may be oblique throughout their whole extent, and composed of a series of chambers or ovoid enlargements succeeding each other at short intervals. Sometimes also, and connected with one of the chambers, a narrow and nearly vertical tubuliform channel extends downwards to a much greater depth, and appears to use as a retreat either during the cold winters or else during the dryness of the summer, when water is low. That it is not for the mere purpose of escaping pursuit, we infer from the fact that we repeatedly caught the animals in the chambers above, where they remained quietly instead of attempting to disappear into the apartments below.

We generally found a single individual in one burrow, it being either a male or a female, the latter in March or April, carrying under the tail a bundle of her eggs. Sometimes, when numerous individuals are gathered on a small space, it may happen that the windings of the upper part of their burrows will accidentally meet and have in this case a communication which was not contemplated. Each individual, however, remains in its own apartment; so at least we constantly found to be the case.

To accomplish the act of breeding, males and females must come together at one particular time. In one of the burrows which we examined we found a male and a female. We are inclined to believe that the male quits its retreat and goes in search of the female, as one individual of the former sex was found, at one time, walking over the surface of the ground.

In the spring, and we are told in the fall also, the burrowing crawfish builds over the holes of its burrow a chimney of the maximum height of one foot, but most generally lower. This chimney, circularly pyramidal in shape, is constructed of lumps of mud, varying in size, irregularly rolled up, and piled up, one upon each other, and intimately connected together. Its exterior has a rough and irregular appearance; whilst the interior is smooth and as uniform as the subterraneous channel, having the same diameter as the latter. The cementing of the successive balls of mud is easily accounted for when we bear in mind that the latter are brought up in a very soft state, and that their drainage and subsequent solidification on their exposure to the atmospheric air and rays of the sun, are all that is required to unite these parts.

The animal works during night. How the work is performed has not yet been ascertained by actual observations. As to the question of the manner in which the mud is modelled into rolls or balls, either the tail, or perhaps the big claws might perform that part of the work. An observation made by John D. Godman[*] leads us to suppose that the mud is brought up embraced between the chest and the large claws. On an examination of these chimneys we detected the imprints of the second and third pair of claws, which indicate, evidently, that the parcels of mud, once brought to the surface in the manner just stated, are arranged and fixed in their definitive place by means of these organs.

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[*] Rambles of a Naturalist. Philadelphia, 1833, pp. 40, 41.

When the work has thus been carried on towards completion, the last touch consists in shutting up the aperture. This is accomplished by means of several balls of mud, brought up from underneath, deposited temporarily on the edge of the chimney and drawn back in close contiguity, so as to intercept all communication with the external world.

The number of such chimneys is sometimes very great in one particular locality, distributed without any geometrical regularity, and recalling to mind the scattered habitations or village of a newly settled colony.

Whether *C. diogenes* is to be found in other places besides the meadows, we are not prepared to state definitively. We have seen localities where the holes could be traced from the edge of the rivulets to the middle of the meadows; still, there being no subterraneous communication from one burrow to the other, the animal, at any rate, would have to crawl out of the water, and walk over land. Colonies of burrowing crawfish are found, we are told, in the interior of lands, far away from any rivulets or waters, a circumstance which would lead to the supposition that these at least pass their entire life in such localities instead of spending one season in the waters and another in dry lands. For, one fact must be very apparent, the existence of several species of crawfishes with burrowing habits, even in the hypothesis of an identity between *C. fossor* and *C. diogenes*. For we learn from Mr. T. R. Peale, of Washington, that chimneys of mud, in all points similar to those just described, were observed by him in New Grenada, along the Rio Magdalena, several hundred miles from the sea shore, and consequently indicating the presence there of a species of crawfish which we do not hesitate in pronouncing distinct from *C. diogenes*.

It remains now to ascertain how many such there are, and whether some of them are not to be found both in the running waters of the rivulets and in the meadows.

12. CAMBARUS LONGULUS, Girard.—Rostrum of the same proportional length as in *C. diogenes*, but it is narrower and slightly concave on the sides. The dorsal area between the sutures of the carapace is very broad, a character which at once distinguishes it from the preceding species. From *C. Bartonii* it differs by a much more elongated and narrower rostrum.

Locality.—Uncertain; labels having been accidentally lost. Its range, however, is within the middle States of the Union.

13. CAMBARUS PUSILLUS, Girard.—*Astacus pusillus*, RAFIN. Amer. Monthly Mag. II, 1817, 42.

This species comes nearest to *C. montanus*, but the antennæ are still longer and the rostrum more tapering, and terminated by a more elongated point. The dorsal area, between the sutures of the carapace is likewise narrower.

Localities.—Lake Ontario, three miles from shore opposite Oswego, taken in the stomach of *Lota maculosa* (Baird).—Brooks near Saratoga, Lake George, Lake Champlain, Utica, Oswego, (Rafinesque.)

14. CAMBARUS ROBUSTUS, Girard.—Differs from *C. Bartonii* by stouter antennæ, composed of shorter articulations and by proportionally more elongated and more conical rostrum and a more acute terminal point. From *C. pusillus* it is distinguished by having shorter antennæ, besides a difference in the shape of the rostrum. The dorsal lines of suture of the carapace, on the other hand, do not approximate as much as in *C. diogenes*, although nearer than in both *C. Bartonii* and *C. pusillus*. It differs from *C. longulus* by a broader rostrum and a narrower dorsal area. The anterior pair of abdominal legs in the male, moreover, is flattened and twisted.

Locality.—Humber River, near Toronto (Canada).

15. CAMBRUS GAMBELII, Girard.—Antennæ, about the length of the body, from the tip of the rostrum to the origin of the tail. Rostrum proportionally long and conical as in *C. diogenes* and *C. longulus*, but is bordered on each side with a row of minute and conical tubercles. Anterior claw very stout, bearing

tufts of fine hair. Anterior pair of abdominal legs, elongated, resembling somewhat in shape those of *C. robustus*, to which it bears a close relationship.

Locality.—California. Collected by the lamented Dr. William Gambel, to whose memory we inscribe the species. Specimens are deposited at the Academy of Natural Sciences of Philadelphia.

16. Cambarus nebrascensis, Girard.—Rostrum intermediate, in form between that of *C. robustus* and *C. diogenes*. Dorsal lines of suture of the carapace in close contiguity. Large claw nearly conical, giving to the species a very peculiar aspect.

Locality.—Fort Pierre (Nebraska); collected in 1850 by Thaddeus Culbertson.

Third Group.—Rostrum very much elongated, conical, tapering, provided on both sides and rather near the extremity with a small and acute spine, sometimes, however, but very slightly developed.

17. Cambarus Blandingii, Erichs. Arch. f. Naturg. 1846, I, 98.

Astacus Blandingii, Harl. Faun. Amer. & Trans. Philos. Soc. Philad. N. S. III, 1830, 464; Med. & Phys. Res. 1835, 229, fig. 1.

Localities.—Marshes and rivulets of Southern States (Harlan); Summerville, S. C. (Girard).

18. Cambarus Clarkii, Girard.—Antennæ long and slender, nearly as long as the body and tail. Rostrum tapering, but very gradually from its base to the lateral spines, though the terminal point is more elongated than in *C. Blandingii*. Anterior pair of abdominal legs terminated by two nearly equal and rounded tubercles.

Locality.—Between San Antonio (Texas) and El Paso del Norte; collected by John H. Clark, Esq., under Lieut. Col. J. D. Graham, late head of Scientific Corps U. S. Boundary Commission.

19. Cambarus acutus, Girard.—Rostrum proportionally shorter than in both *C. Blandingii* and *C. acutissimus*; very broad at its base, and tapering very suddenly towards its extremiry. The lateral spines of the rostrum are scarcely to be seen in this species; the tip is likewise very short although very acute. The structure of the anterior pair of abdominal legs in the male, differs from that of *C. Blandingii* and *C. Clarkii*, by the more slender shape of the terminating tubercles. The antennæ have nearly the same proportional length as in *C. Clarkii*.

Locality.—From an affluent of Mobile river in Kemper Co., Miss.; specimens received from D. C. Lloyd, Esq.

20. Cambarus acutissimus, Girard.—Rostrum much more elongated than in any of the species of the same group; very much tapering and very acute, with slight indications of the lateral spines which are so well developed in *C. Blandingii*. The anterior abdominal pair of legs is terminated by a slender and recurved tip.

Locality.—Found with the preceding and sent by the same gentleman to Professor Baird.

The Committee on Dr. LeConte's Synopsis of the Anthicites of the United States, reported in favor of publication in the Proceedings:

Synopsis of the Anthicites of the United States.

By John L. LeConte, M. D.

Although it is but three years since M. de la Ferté Sénectère published his very beautiful and elaborate monograph of Anthicus, yet the species known to inhabit our territory have almost doubled in number. Most of these have been published by me already in the Annals of the Lyceum of Natural History of New York, and in Prof. Agassiz's work on the Physical Character of Lake Superior. The object I had in view in the beginning of my study of this group, was to make known several species of genera associated by Ferté with the Anthicites, such as Stereopalpus and Eurygenius; but after an attentive study of these genera, I became convinced that they, as well as Macratria,* must be removed from this group altogether. The two first must be placed among the Pyrochroites, a synopsis of which will shortly appear. Having also increased this family by one very distinct genus, I thought that it would be useful to bring together the descriptions that are now scattered in several works, into the form of a synopsis, so that the species being placed in a natural relation with each other, the characters of each might become more obvious. It is remarkable that of all the indigenous species, only one (Notoxus monodon) should be common to both sides of the continent. Anthicus floralis, found both here and in Europe, is most probably introduced in articles of commerce. Ferté mentions its occurrence also in California.

With regard to the affinities of this group I can say but little. Some authors imagine that there exists a relation between them and the Scydmæni, which, however, appears rather a resemblance of form, for a certain manner of life, than a true affinity; for besides the differences in the palpi and insertion of the antennæ, the prosternum in Scydmænus is entirely separated from the lateral inflexed portions of the thorax, while in Anthicus it is all in one piece. The true affinities appear to be with the Pyrochroites, from which they are distinguished only by the form of the parapleuræ, which in Anthicus are triangular, and in Pyrochroites parallel. Other differences are in the neck of Pyrochroites being less narrow and not so distinctly separated as in Anthicus; in the antennæ being inserted in front of, and very close to the eyes, which are large and more or less emarginate, extending far on the under surface of the head, and frequently almost uniting on the vertex.

The diagnosis of the present tribe will then be:

Coleoptera heteromera, capite postice valde coarctato, collo distinctissimo; oculis integerrimis, lateralibus; mandibulis apice emarginatis; abdomine 5-articulato, articulis liberis; parapleuris triangularibus; coxis anticis contiguis; unguibus simplicibus.

The native genera are thus related:

A. Antennæ articulo 11^{mo} simplici.
Thorax cornutus; tarsi articulo 4^{to} bilobato . . . Notoxus.
Thorax simplex; tarsi articulo 4^{to} bilobato;
antennæ moniliatæ, femora incrassata . . Tomoderus.
Antennæ non moniliatæ; humeri indistincti . Formicomus.
humeri distincti . Anthicus.
B. Antennæ articulo 11^{mo} elongato, quasi diviso.
Thorax simplex; articulo tarsorum 4^{to} simplici . . Tanarthrus.

Notoxus Geoffroy.

1. N. anchora, elongatus, testaceus, thorace globoso, cornu serrato, crista sensim elevata, elytris valde punctatis, macula laterali, fascia postica suturaque nigris. Long. ·14.

Hentz Journ. Ac. Nat. Sc. 5, 375, pl. 13, fig. 4: La Ferté, Anthic. 33.

Monocerus anchora Lec. Journ. Ac. Nat. Sc. New Ser. 1, 89.

Lake Superior, Pennsylvania, Georgia, Ohio and Missouri Territory: the lateral spot is sometimes wanting; the horn is rounded at the apex and serrate, the crest rises gradually, is margined on the sides but not at the apex. The male has the apex of the elytra truncate.

2. N. conformis, elongatus, testaceo-fuscus, thorace globoso, cornu elongato, crista subito paulo elevata, elytris parce punctatis, maculis utrinque 2 ante medium, fasciaque postica nigris. Long. ·13.

Lec. An. Lyc. 5, 152.

One specimen, found on the Gila. The thorax is globose, not transverse, the horns margined, not serrate; the crest is broad, rises suddenly but slightly, and is strongly margined both on the sides and apex. The elytra are strongly but not densely punctured; the inner of the two spots is near the scutellum, the outer one behind the humerus. The posterior band is oblique and sinuous.

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* There is no reason why this genus should not be associated with Scraptia.

3. N. **cavicornis**, minus elongatus, fusco testaceus, thorace rotundato, transverso, cornu elongato, apice concavo, crista subito valde elevata, elytris punctatis, macula scutellari, lineolis anticis, fasciaque postica nigro-fuscis. Long. ·11.

Lec. An. Lyc. 5, 152.

San Francisco, California: male with the apex of the elytra acute, obliquely truncate on the outer side. The thorax is one-half wider than long, the horn broad not serrate, strongly excavated at tip, crest broad, high, margined on the sides and apex, which is rounded. Elytra distinctly, not densely punctured.

4. N. **serratus**, elongatus, testaceus, thorace globoso, cornu antice concavo, serrato, crista subito valde elevata, elytris subtilius punctatis, macula scutellari, lineolis anticis, fasciaque lata postica infuscatis. Long. ·17.

Monocerus serratus Lec. Journ. Ac. Nat. Sc. New Ser. 1, 90.

Near the Rocky Mountains. One male specimen has the elytra immaculate, with the apex slightly truncate. The horn is broader than usual, strongly serrate, concave at the apex; the crest is high and rises very suddenly, is strongly margined, but scarcely rounded at the apex. The elytra are more finely punctured than in the preceding species.

5. N. **monodon**, elongatus, testaceus, thorace globoso, subtransverso, cornu antice concavo, serrato, crista sensim modice elevata, elytris minus subtiliter punctatis, macula scutellari fasciaque postica nigris. Long. ·12.

Ferté Anthic. 37.

Anthicus monodon Fabr. Syst. El. 1, 289: Say, Am. Ent. 1, pl. 10.

Monocerus monodon var. *a.* Lec. Journ. Ac. Nat. Sc. New Ser. 1, 90.

Massachusetts, Pennsylvania, Georgia, Missouri Territory and California. The horn is serrate, broad and concave at the apex; the crest is moderately broad, rises gradually and is margined on the sides and tip, which is somewhat acute. The elytra are strongly punctured, though less so than in N. anchora; the scutellar spot is sometimes wanting.

6. N. **apicalis**, elongatus, testaceus, thorace globoso, cornu antice concavo, lateribus serrato, crista subito valde elevata, elytris densius punctatis, macula scutellari, fascia postica, apiceque nigris. Long. ·15.

Monocerus monodon Lec. Jour. Ac. New Ser. i. 90.

Detroit, Michigan. Easily distinguished from the preceding by the form of the horn. The thorax is not at all transverse; the horn is broad, concave at the apex, serrate on the sides; the crest rises very suddenly, and is margined at the sides and apex, which is rounded. The elytra are tolerably densely punctured.

7. N. **marginatus**, valde elongatus, testaceus, thorace subgloboso, cornu vix serrato, crista subito valde elevato, elytris subtiliter punctulatis, gutta subscutellari, linea submarginali, fascia tenui postica, apiceque nigris. Long. ·16.

Detroit. Easily distinguished by its much narrower form. The thorax is less narrowed behind than usual, and not at all transverse; the horn is margined and scarcely serrate; the crest rises suddenly and is margined at the sides and apex, which is rounded. The black marks of the elytra are very narrow; the fascia is angulated at the suture, and does not reach the margin; the submarginal line extends from below the humerus to the apex.

8. N. **subtilis**, valde elongatus, fusco-testaceus, thorace globoso, subtransverso, cornu serrato, crista subito valde elevata, elytris subtilissime punctulatis, macula scutellari, fascia ad medium apiceque nigris, margine infuscato. Long. ·13.

Missouri Territory, one specimen. Differs from all the preceding species by the fascia being at the middle of the elytra. The thorax is slightly transverse; the horn is concave at the apex, subserrate; the crest rises abruptly and is strongly margined and somewhat rounded at the apex.

Var.? Entirely testaceous, with a marginal fuscous spot at the middle of each elytron. I have only a single specimen of this, which is possibly a distinct species; it is less elongated, and the elytra are broadly truncate at the tip.

9. N. bifasciatus, elongatus, fuscus, thorace globoso, cornu vix serrato, crista subito elevata, elytris subtilissime punctulatis, nigris, fasciis duabus cinereis ornatis. Long. ·13—·16.
Monocerus bifasciatus Lec. Journ. Ac. Nat. Sc. New Ser. i. 89.
Western States and Upper Mississippi. The feet are either fuscous or ferruginous; the thorax is sometimes rufous; the elytra are rounded at the tip in both sexes; the anterior fascia is broad and situated at the anterior fourth of the length of the elytra, the second is narrow and placed one-third from the apex.

10. N. bicolor, elongatus, obscurus, pedibus thoraceque læte rufis, hoc cornu serrato, crista lata sensim elevata, elytris opacis cinerascentibus, subtiliter punctulatis. Long. ·13.
Ferté Anthic. 53.
Anthicus bicolor Say Am. Ent. i. pl. 10.
Monocerus bicolor Lec. Journ. Ac. Nat. Sc. N. Ser. i. 90.
Common in the Middle and Southern States. The thorax is subglobose; the horn wider than usual, strongly serrate; the crest is wide, rises gradually, and is margined on the sides and apex, which is rounded.
Species unknown to me:

11. N. Pilati Ferté Anthic. 297. Texas.

12. N. planicornis Ferté Anthic. 39, fig. 8. Very distinct by the absence of the crest of the horn.

13. N. talpa Ferté Anthic. 50.

14. N. elegantulus Ferté ibid. 52. These are both from California. They appear to be allied to N. bifasciatus.

TOMODERUS Ferté.

This genus is distinguished by its submoniliform antennæ, and clavate femora; the fourth joint of the tarsi is bilobed as in Anthicus.

1. T. interruptus, parce pubescens, thorace medio valde constricto, lobo anteriore latiore, transverso, elytris confuse punctatis, punctis pone medium subtilioribus. Long. ·11.
Ferté Anthic. 97.
Middle and Southern States, varies from black to brown; usually dark brown, with the posterior part of the elytra black.

2. T. constrictus, parce pubescens, thorace medio valde constricto, lobo anteriore latiore subtransverso, elytris antice seriatim grosse punctatis, pone medium obsolete punctulatis. Long. ·12.
Ferté, Anthic. 101.
Anthicus constrictus Say, Journ. Ac. Nat. Sc. 5, 244.
Southern States; the obsolete punctures of the posterior part of the elytra is the only character for separating this species from the preceding, in which the punctures frequently show a tendency to form series. I am very doubtful whether they should be considered distinct.

{ FORMICOMUS Ferté. }
{ *Formicilla* Lec. }

This group is only separated from genuine Anthicus by the oval, convex elytra without distinct humeri, and by its more strongly clavate femora. I have placed it in brackets to signify that I do not adopt the name.

1. A. scitulus, apterus, rufo-testaceus, nitidissimus, thorace elongato,

postice constricto, elytris ovalibus, convexis, macula magna laterali, fasciaque angusta postica nigris. Long. ·1.

Sea beach of Sullivan's Island, S. Carolina: June. Body bright reddish yellow, very smooth and shining; head large, slightly convex, rounded behind, marked with a few distant punctures, and four or five erect black hairs; front blackish; antennæ with the joints 2—6 slender, nearly equal, 7—11 gradually increasing in size. Thorax as long as the head and one half narrower, transversely convex, much narrowed and constricted just behind the middle, then widened a little to the base, which on each side has a wide shallow fovea. Elytra oval, gradually dilated to the middle, where they are three times as wide as the thorax; apex rounded; humeral angles obsolete, disc convex, smooth, ornamented with a large lateral blackish spot at the middle, and a narrow blackish band between that and the apex; margin with a few black bristles. Body beneath finely punctured, and slightly pubescent, thighs slightly incrassated, tarsi slender, lobes of the 4th joint very narrow, produced beneath; posterior tibiæ slightly compressed and bent.

I can find no sexual difference. This and the next species might more properly enter Ferté's 4th division of Anthicus, but both have the neck of the thorax distinct, and this one is completely apterous. At any rate they show the necessity of uniting the two genera.

2. A. mundus, alatus, rufo-testaceus nitidissimus, thorace elongato, pone medium constricto, basi 3-punctato, elytris pone humeros impréssis, rufis fascia lata ad medium, maculaque maxima apicali nigris. Long. ·09.

Formicilla munda Lec. An. Lyc. 5, 152. Bright reddish yellow, very smooth and shining, with a few black setæ; antennæ, head and thorax as in the last, except that the latter is less convex on the disc, and has three points at the middle of the base. Elytra much less convex, slightly dilated as far as the middle, rounded at the apex; humeri distinct obtuse; disc obsoletely and sparsely punctured before the middle, post humeral impression large and distinct; ornamented with a very broad black fascia at the middle, and a very large, common black spot, which extends nearly to the apex, leaving only a narrow yellow fascia between it and the band just described, and a narrow lateral and apical margin yellow. Body beneath ferruginous, finely punctured and pubescent. Thighs moderately incrassated.

I found only two specimens of this insect, on the lower part of the Colorado River. It agrees so closely in general characters with the preceding species, that it would be unnatural to separate it as a distinct genius. I am, therefore, led to believe that the filiform tarsi, ascribed by me to this insect, must be an error of observation, depending on the condition of the specimens, which unfortunately became mouldy at Panama. All my attempts to cleanse the tarsi have heretofore proved useless; and I may add, that in A. scitulus, the lobes of the fourth tarsal joint are so delicate, that the slightest dirt is sufficient to render them invisible.

ANTHICUS Paykull.

Although the arrangement followed by Ferté may be the most convenient in working with species from every part of the world, yet it has appeared to me to be capable of some improvement, when used in the study of our native species. I have therefore attempted to separate them into homogeneous groups, so that the diagnoses of the species may thereby be shortened, and the labor of identifying species diminished. The following table seems to answer the purpose without any great violation of affinity.

A. Caput non granulatum, tibiæ calcaribus fere obsoletis. Thorax basi marginatus.

a. Capite rotundato, occipite non impresso, palpis articulo ultimo maximo, thorace postice constricto, elytris basi impressis. Sp. 1—3.

b. Capite rotundato, occipite breviter impresso, thorace postice constricto, elytris basi impressis. Sp. 4—6.

c. Capite rotundato, occipite non impresso, thorace postice modice constricto, elytris non impressis: corpus minus pubescens. Sp. 7—9.

d. Capite subquadrato, thorace elongato, trapezoideo; corpus vix pubescens. Sp. 10—13.

e. Capite subquadrato, thorace plus minusve trapezoideo, elytris non impressis; corpus longius pubescens.

1. Capite postice rotundato, thorace subcampanulato; antennis tenuibus. Sp. 14—18.

2. Capite postice truncato, pone oculos non angustato, oculis prominulis. Sp. 19—36.

3. Capite postice truncato, pone oculos non angustato, oculis parvis; elytris lateribus rotundatis, humeris fere nullis. Sp. 37.

B. Caput non granulatum; tibiæ calcaribus obsoletis; thorax basi non marginatus. Sp. 38.

C. Caput triangulare, granulatum; tibiæ calcaribus valde distinctis; thorax ovatus basi marginatus. Sp. 39—40.

1. A. obscurus, niger nitidus subtiliter pubescens, capite impunctato, thorace postice constricto, basi cylindrico, elytris parcius punctulatis, versus basin vix cinerascentibus, antennarum basi picea. Long. ·12.
Ferté, Anthic. 116.
Coney Island, near New York. July, in salt marsh. The elytra are less impressed behind the base than in the following. The posterior tibiæ of the male are not dilated, or bent.

2. A. nitidulus, niger nitidus, subtiliter pubescens, capite parce punctato, thorace postice constricto, basi cylindrico, elytris parce punctulatis, basi vix cinerascentibus, antennarum basi picea. Long. ·12.
Lec. An. Lyc. 5, 153.
Two specimens, San José, California. Exactly similar in size and form to the preceding, but differs by the head being punctured, and the elytra more deeply impressed towards the base.

3. A. elegans, rufo-piceus, subtiliter pubescens, capite vix punctato, thorace postice constricto, basi cylindrico, elytris punctulatis, nigris, basi indeterminate rufis, et cinerascentibus. Long. ·12.
Ferté, Anthic. 117.
Georgia and Missouri Territory. I have always considered this species as A. cinctus Say, but, after renewed investigation, feel inclined to adopt Ferté's conclusion, that Say's species is more allied to A. formicarius. The expression "elytra hirsute" will by no means apply to the present species, nor is there ever a cinereous spot at the tip of the elytra. The male has the posterior tibiæ dilated and sinuated internally.

4. A. tenuis, niger opacus, tenuiter pubescens, capite dense punctulato, occipite breviter canaliculato, thorace postice constricto, basi cylindrico, elytris vix impressis subtilissime punctulatis, fascia ante medium angusta albida, antennis palpis pedibusque testacis. Long. ·12.
Lec. An. Lyc. 5, 153.
Colorado River, California. Approaches very closely to the preceding species in form, but the last joint of the palpi is longer than wide. The anterior part of the thorax is less globose than in A. formicarius, with which, however, it agrees so closely in the form of the body and structure of the palpi, that it would be

quite unnatural to separate them. The elytra of the male are truncate at apex, so that the pygidium is visible.

5. A. formicarius, nigro-piceus, nitidus, parce griseo-setosus, capite punctis paucis impresso, occipite brevissime canaliculato, thorace postice valde constricto, dein subampliato et punctato, elytris grosse parce punctatis, basi indeterminate rufis, impressis, et anguste flavo-fasciatis. Long. ·14.

Ferté, Anthic. 185.

New York and Massachusetts, usually in salt marshes. The anterior part of the thorax is convex, and sparsely punctured; the posterior lobe is a little widened towards the base, and is tolerably densely punctured. The base of the antennæ and tarsi are testaceous. The punctures of the elytra become small behind the middle. The male has the pygidium prominent.

6. A. cinctus, rufus nitidus, parce griseo-setosus, thorace postice valde constricto, dein subampliato, et granulato, elytris parce grosse punctatis, nigris basi rufis, fascia pone basin apiceque flavis. Long. ·15.

Say. J. Ac. Nat. Sci. 3, 278; Ferté, 274.

Illinois; Mr. Willcox. This species is very closely allied to the preceding, but differs in color, and in the sculpture of the posterior lobe of the thorax, which, instead of being punctured, is densely and finely granulate. The punctures of the front part of the elytra are also more numerous. The head is marked with a few punctures, and the occiput with a very short impressed line, just as in the last species. The pygidium of the male projects.

7. A. annectens, nigro-piceus, nitidus, parce pubescens, capite thoraceque vix subtiliter punctulatis, hoc postice constricto, ad basin subtiliter bituberculato, elytris minus subtiliter punctatis, tibiis testaceis. Long. ·1.

Lec. An. Lyc. 5, 153.

One specimen, from the sea-shore at San Diego, California. The thorax is longer than wide, much rounded on the sides before the middle, then narrowed, and slightly constricted before the base, which is cylindrical, very finely punctured, and distinctly bituberculate. The punctures of the elytra grow small behind the middle.

8. A. californicus, rufo-piceus, nitidus, parce pubescens, capite thoraceque punctulatis, hoc postice constricto, vix bituberculato, elytris minus dense punctatis, macula ad medium apiceque nigropiceis. Long. ·1.

Ferté, Anthic. 128.

Abundant at San Diego, California, on the sea-shore, and in the marshes. The thorax is more obliquely rounded on the sides before the middle than in the last species; the tubercles of the base are scarcely visible. The punctures of the head and thorax are very distinct, and those of the latter become very dense towards the base.

This species varies very much in color. The spots are usually quite undefined. I have a specimen with pale yellowish elytra, and the spots very well defined; the anterior one is placed near the middle, is very large, and extends nearly to the suture. Others occur which are entirely black. The male has the abdomen subtruncate at the apex.

9. A. reiectus, rufo-piceus, nitidus, parce pubescens, capite thoraceque punctulatis, hoc postice angustato, subconstricto, elytris depressiusculis, sat dense punctatis, ad basin medium et apicem infuscatis. Long. ·1.

New York and Missouri Territory, in salt marshes. Rufo-piceus, shining, sparsely pubescent. Head rounded, prominent behind, finely not densely punctured. Thorax longer than wide, moderately convex, not densely punctured, rounded on the sides anteriorly, obliquely narrowed nearly to the base, where it is slightly constricted, cylindrical portion of the base shorter than in the preceding, densely punctured, with two very obsolete tubercles. Elytra somewhat flattened, twice as wide as the base of the thorax, humeri prominent, sides slightly widened to the middle: strongly, moderately, densely punctured, punc-

tures smaller towards the apex; base, middle and apex darker. Varies with the elytra piceous black, at base piceous. The male has the abdomen truncate at tip.

10. A. **floralis**, piceus nitidus vix subtilissime pubescens, subtiliter punctatus, occipite impresso, thorace, elytrorum basi, antennis pedibusque rufescentibus. Long. ·15.

Payk. Faun. Suec. 1, 256; Fabr. Syst. El. 1, 291; Ferté, 150.

Var. *A. basillaris* Say, J. Ac. Nat. Sci. 3, 279.

Found in every part of the United States. For the synonyms see Ferté's Monograph. As they do not relate to the occurrence of the insect on this continent, they are here entirely out of place. From the other almost glabrous species found here, this is immediately distinguished by its impressed vertex. The thorax most commonly has two prominences anteriorly, separated by an impressed line.

The variety without these protuberances has a more distinct posthumeral impression on the elytra, and is evidently A. basillaris Say.

11. A. **vicinus**, elongatus, rufus, nitidus, fere glaber, capite thoraceque parce punctato, hoc elongato, postice angustato, elytris basi medio et apice late nigris, sat grosse punctatis. Long. ·1.

Ferté, Anthic. 157.

Common in the Middle and Southern States. This species varies in color exceedingly. The diagnosis is from the light colored variety. The basal dark spot of the elytra is sometimes wanting; sometimes the head is fuscous; sometimes the whole insect, excepting the base of the antennæ and the tarsi, is black. Ferté describes the head as impunctured, but I have never met with any on the head of which a few points could not be discovered.

12. A. **thoracicus**, elongatus, niger nitidus, fere glaber, capite thoraceque parce punctatis, hoc rufo, elongato postice angustato, elytris sat grosse punctatis, pedibus rufis. Long. ·1.

Ferté, Anthic. 158.

Georgia, rare. The co-existence of bright red thorax and legs, with black immaculate elytra, is the only character to separate this species from the preceding, with which it accurately agrees in the form of every part of the body. In one of my specimens there is a faint piceous band behind the middle of the elytra, which would seem to be the last trace of the spots which exist in A. vicinus. It would therefore seem safer to consider it as a variety of the preceding.

13. A. **confinis**, elongatus, niger, nitidus, fere glaber, capite parce punctulato, thorace parce punctato, elongato, postice subangustato, elytris densius punctatis. Long. ·1.

Lec. An. Lyc. 5, 153.

One specimen, from the sea-shore at San Diego, California. This species is closely allied to the preceding, but differs in having the thorax less narrowed behind, and the elytra more densely punctured.

14. A. **horridus**, elongatus, testaceus, pilis longis erectis hispidus, capite postice rotundato thoraceque grosse punctatis, hoc longiusculo subcampanulato, elytris grosse punctatis, fascia obscura pone medium ornatis. Long. ·11.

Lec. An. Lyc. 5, 154.

One specimen, from the Gila River. The head has a small smooth longitudinal line.

15. A. **cribratus**, elongatus, flavo-testaceus, longius pubescens, capite postice rotundato thoraceque confertim punctatis, hoc longiusculo, obsolete campanulato, postice vix angustato, elytris grosse punctatis, fascia pone medium angusta nigra ornatis. Long. ·11.

One specimen, St. Isabel, California. The head has an obsolete smooth frontal line; the apex of the elytra is fuscous.

16. A. difficilis, elongatus, testaceus, albido-pubescens, capite postice rotundato, disperse punctato, medio lævi, thorace subcampanulato, latitudine sua longiore, confertim punctato, elytris grosse dense punctatis, fascia lata ad medium infuscata. Long. ·12.
Lec. Agass. Lake Superior, 230.
Lake Superior, abundant. The frontal smooth line is broad; varies with the elytral band obsolete.

17. A. confusus, elongatus, testaceus, albido pubescens, capite grosse punctato, postice rotundato, medio lævi, thorace vix campanulato, lateribus postice oblique angustato, dense punctato, elytris grosse punctatis, fascia obscura ad medium ornatis. Long. ·12.
New York; Louisiana, Mr. Wapler; Southern Illinois, Haldeman. This species is extremely similar to the preceding, but the head is more coarsely punctured; the sides of the thorax behind the middle are oblique, not parallel.

18. A. luteolus, elongatus, flavo-testaceus, albido pubescens, capite postice rotundato, thoraceque confertim punctatis, hoc ovato, postice angustato, latitudine vix longiore, elytris confertim sat grosse punctatis. Long. ·12.
Lec. An. Lyc. 5, 154.
Vallecitas, California. This species resembles the last very much, but the thorax is not at all campanulate, the punctures on the head are denser, and the only smooth part is on the vertex. A variety has a broad fuscous fascia at the middle of the elytra.

19. A. scabriceps, elongatus, nigro-piceus, densius pubescens, capite postice truncato, thoraceque confertissime rugose punctatis, hoc subcampanulato, elytris grosse minus dense punctatis, apice rufescente. Long ·1.
Lec. Agassiz' Lake Superior, 230.
Very abundant on Lake Superior. Varies very much in color. The principal varieties are: α. black base of the elytra piceous: β. head and thorax fuscous, antennæ, legs and elytra testaceous, the latter with a broad black fascia at the middle; γ. entirely testaceous, fascia of the elytra obsolete. The head has a slight impression on the middle of the occiput, the frontal line is scarcely visible.

20. A. ephippium, subelongatus, testaceus, pubescens, capite postice fere truncato, scabro-punctato, medio lævi, thorace vix campanulato, confertissime punctato, elytris grosse minus dense punctatis, fascia ad medium picea ornatis. Long. ·1.
Ferté, Anthic. 163.
New York. Very similar to the last, but is less elongate, and the head is less rugous, with a broad frontal smooth line. I am somewhat in doubt if this really is Ferté's species, as he makes no mention of the smooth frontal space. It is, however, compared with the A. sellatus, in which this line is very distinct, so that the probability is that it also existed in his A. ephippium.

21. A. flavicans, testaceo-flavus, pubescens, capite postice subtruncato, confertim punctato, medio lævi, thorace longiusculo, ovato, postice subangustato, confertissime punctato, opaco, elytris sat dense grosse punctatis. Long :12.
Elongate, testaceous yellow, head and thorax a little darker. Head almost truncate behind, not narrowed behind the eyes, which are large and prominent; densely punctured, frontal line smooth, broad. Antennæ slender, very slightly thickened externally. Thorax a little longer than wide, moderately convex, rounded anteriorly, obliquely slightly narrowed to the base, which is strongly margined; neck very distinct, as in the other species of this group. Elytra one half wider than the thorax, elongate, humeri oblique, rounded; disc ante-

riorly slightly flattened, punctures large, moderately dense, becoming small posteriorly. One specimen, from Missouri Territory.

22. A. rufulus, elongatus saturate rufus, nitidus parce pubescens, parce hispidus, capite postice truncato, minus dense punctato medio lævi, thorace elongato, postice sub-angustato, subtilius punctato, elytris minus subtiliter punctatis. Long. ·1.
Lec. An. Lyc. 5, 155.
One specimen, San Diego. Has very much the form of A. vicinus. The head is tolerably strongly punctured, with a narrow smooth frontal line. The antennæ are less slender than in the other species of this group, and the eyes, though not small, are less prominent.

23. A. cervinus, testaceous, elongatus, subtilius pubescens, capite fusco postice subtruncato, punctato, medio lævi; thorace longiusculo ovato, punctulato, elytris densius punctatis, pone medium nigricantibus, gutta utrinque postica apiceque flavis. Long. ·1.
Ferté, Anthic. 181.
A. bifasciatus||Say, Journ. Ac. Nat. Sc. 5, 245; Hald. Proc. Ac. 1. 304.
A. terminalis Lec. Agass. Lake Superior, 230.
A. bizonatus Ferté, Anthic. 274.
Found everyplace, from Lake Superior to Georgia, and from New York to Nebraska. A very valuable species; the most common form is that above described; there are others fuscous, legs and antennæ testaceous, elytra black, with a basal spot, and one behind the middle testaceous; others, again, are entirely yellow-testaceous.
Some of these varieties come very near to A. Haldemani, but are immediately distinguished by the occiput not being channeled.

24. A. punctulatus, elongatus, niger nitidus, cinereo-pubescens, capite postice subtruncato, thoraceque confertim subtilius punctatis, hoc longiusculo, postice subangustato, elytris minus convexis, dense punctatis. Long. ·1.
Lec. An. Lyc. 5, 155.
San Jose and San Diego. The frontal line is narrow and slightly elevated. The eyes are smaller than in the preceding, but are moderately prominent.

25. A. Haldemani, ater, subnitidus, breviter pubescens, confertim punctatus, capite postice truncato, occipite impresso, thorace longiusculo ovato, elytris maculis utrinque duabus magnis flavis, antennis pedibusque testaceis. Long. ·11.
A. quadriguttatus||Hald. Pr. Ac. 2, 304.
Massachusetts and Pennsylvania. Varies with the anterior spot diffuse so as to cover nearly the anterior half of the elytra, and the posterior spots coalescing: so that the elytra become yellow, with the suture, a transverse band at the middle, and the apex fuscous. The thighs are sometimes fuscous. The frontal line is narrow and indistinct, and the points on the head are not very dense. Those of the elytra are a little larger and very dense. The thorax becomes very slightly cylindrical at base. It seems to resemble very much A. 4-maculatus (Ferté 203) from Europe, but the pubescence is distinct, and equally distributed over every part of the body.

26. A. quadrilunatus, ater subnitidus, breviter pubescens, confertim punctatus, capite postice truncato, occipite vix impresso, thorace ovato, convexo, elytris maculis utrinque duabus, tibiis, tarsis, antennarumque basi ferrugineis. Long. ·12.
? Ferté, Anthic. 201.
One specimen, New Mexico, Fendler. Very close to A. Haldemani; the head is a little more square behind, and there is scarcely a trace of an occipital impression. The thorax is more convex in front, though scarcely enough so to be described as round, and I have therefore doubts about it being identical with the Californian species described by Ferté.

27. A. biguttulus, magis elongatus, ater subnitidus, tenuiter pubescens, confertim punctatus, capite postice subtruncato, thorace longiusculo, ovato, elytris macula pone medium rotundata ferruginea. Long. ·15.

Lec. An. Lyc. 5, 255.

One specimen, San Francisco. A fine species, differing from the two preceding by having the head less truncate behind, and the occiput not impressed; frontal line none. The pubescence, though fine, is longer than in the preceding, and the thorax is extremely densely punctured. The punctures of the elytra are larger and not so dense.

28. A. nigritulus, elongatus, niger, nitidus, tenuiter longius pubescens, capite parce punctulato, basi subtruncato, thorace elongato, postice subangustato, punctulato, elytris depressiusculis minus subtiliter punctatis, omoplatis prominulis. Long. ·08.

Lec. An. Lyc. 5, 154.

San Francisco, California. The form of the body is altogether that of A. vicinus, but the pubescence has caused me to separate it from that group. The antennæ are much thicker than in the preceding species, and the eyes are smaller, in both of which respects it agrees with A. vicinus.

29. A. obscurellus, elongatus, fuscus, dense pubescens, capite punctulato basi truncato, linea frontali lævi tenui, thorace longiusculo, ovato, confertim punctulato, elytris elongato-ellipticis, punctatis, pone medium infuscatis. Long. ·08.

Lec. An. Lyc. 5, 155.

San Jose, California, abundant. A small elongate species, with the humeral angles of the elytra more rounded than usual. The elytra are transversely moderately convex, and a little flattened towards the base. The eyes are small, and the antennæ tolerably thick.

30. A. latebrans, sub-elongatus, flavo-testaceus, parce pubescens, capite punctato, basi truncato, occipite breviter impresso, linea frontali tenui lævi, thorace confertim punctulato, vix cordato, elytris basi emarginatis, punctatis, pone medium vix infuscatis, humeris valde rotundatis. Long. ·08.

One specimen, New York. Similar to the preceding, but less elongate. The thorax is narrowed and very slightly cylindrical at base, which causes it to appear somewhat cordate. The elytra are a little flattened at base; the rounding of the humeral angles gives them a more convex lateral outline than usual.

31. A. spretus, fuscus, longiusculus, pubescens, capite punctato, basi truncato, linea frontali integra lævi, thorace confertim punctulato, trapezoideo, elytris basi emarginatis, punctatis, humeris rotundatis, elytrorum basi, antennis, pedibusque testaceis. Long. ·08.

New York and Boston. A pale variety found on the upper Mississippi. This species very nearly resembles the last, and when pale colored, can only be distinguished by the want of the occipital channel; the thorax is not longer than wide, and not at all cylindrical at the base. The elytra are a little longer and more parallel.

32. A. nanus, fuscus, elongatus, dense pubescens, capite punctato, postice truncato, medio lævi, thorace rufo confertim punctulato, trapezoideo, postice subangustato, elytris confertim punctatis apice testaceis, basi rufis truncatis, humeris rotundatis, antennis pedibusque testaceis. Long. ·09—·08.

Lec. An. Lyc. 5, 156.

San Diego, California. Varies in color to pale yellow, without any fuscous marks. It is very closely allied to the preceding, but the punctures of the head are larger; the elytra not so coarsely but more densely punctured, and the humeral angles are less rounded.

33. A. bellulus, rufo-testaceus, subelongatus, pubescens, capite confertim punctato, linea frontali vix distincta, postice truncato, thorace trapezoideo,

postice augustato, punctulato, elytris basi truncatis, dense punctatis, fascia medium apiceque nigris. Long. ·07.

Lec. An. Lyc. 5, 156.

A very pretty little species found at San Diego, on the sea shore, and nearl related to the preceding four species; the head is densely and more finel punctured, the frontal line very fine. The thorax is scarcely as wide as lon slightly narrowed behind; the basal margin is indistinct. The elytra are conve truncate at the base, with the humeral angles moderately rounded. The pun tures are denser and a little finer than in A. nanus.

34. A. pubescens, nigro-fuscus, pube cinerea suberecta hispidus, capit postice truncato, thoraceque subtiliter punctatis, hoc quadrato, postice vi angustato, elytris parallelis convexis grosse punctatis, basi truncatis. Long. ·1

Ferté, Anthic. 177.

One specimen, New York. This species and the two following differ fro all the preceding, in the form of the elytra, which are convex, truncate at bas and with the sides straight as far as the middle, parallel in the males, slightl diverging in the females, with the base each side of the scutellum a littl elevated. The head of this species is wider than the thorax, the eyes larg the frontal line narrow; the occiput impressed; thorax almost square, rounde anteriorly, scarcely narrowed behind, very finely and densely punctured. Elyt twice as wide as the thorax, punctures coarse, not dense; the feet and base the antennæ are piceous.

35. A. fulvipes, nigro-fuscus, brevius subtiliter pubescens, capite postic truncato, parcius punctulato, thorace subtiliter confertissime punctulato, postic subangustato, elytris parallelis, basi truncatis, grosse punctatis, antennis ped busque rufis. Long. ·1.

Ferté Anthic. 177.

Louisiana, Mr. Wapler. Smaller than the preceding, with which it agre perfectly in shape, except that the thorax is more distinctly narrowed behin The head is much less densely punctulate, and the occiput is not impresse The pubescence is very different, being fine, short and not all erect.

This is very evidently La Ferté's species, although he says that the thora is not margined at base. I fear this is an error, as of all the American speci I have examined, there is but a single one, A. coracinus *Lec.* in which th marginal line is not to be discovered.

36. A. corticalis, fusco-piceus, pube longa suberecta vestitus, capite th raceque impunctatis, illo postice truncato, hoc trapezoideo, postice subangu tato, elytris basi truncatis, parallelis, convexis, grosse punctatis, pedibus ruf Long. ·11.

Lec. An. Lyc. 5, 154.

I found this species very abundant at the juncture of the Colorado and Gil rivers, under the bark of trees. It agrees accurately in form with the two pr ceding species, but the head and thorax are impunctured; there is no occipit impression; the thorax is scarcely longer than wide, and is but slightly narrowe behind. The antennæ are fuscous, with the base testaceous.

37. A. maritimus, pallidus, cinereo-pubescens, capite thoraceque subtilissime punctulatis, illo truncato, hoc longiusculo ovato, elytris subtilius punctatis, murinis, ellipticis convexis, basi emarginatis. Long. ·09.

Lec. An. Lyc. 5, 156.

San Diego, under sea-weed. At once distinguished by the roundness an convexity of the elytra, which have scarcely any humeral angles; the fronta line is very fine; the thorax is as wide as the head, regularly narrowed to th base, which is scarcely perceptibly margined. A variety occurs with th suture and base of the elytra pale. Ferté's figure of A. biguttata represents very well this insect; the species resembling it from the Atlanti coast of the United States (A. ictericus *Ferté*,) I have not yet seen.

38. A. **coracinus**, elongatus niger, brevissime pubescens, capite subquadrato, basi subemarginato, thoraceque longiusculo postice angustato confertim punctulatis, elytris elongatis, basi truncatis, grosse punctatis. Long. ·17.

Two specimens from the Upper Mississippi. This species differs from all the preceding by the thorax being perfectly without a basal margin, even at the sides. The head is wider than the thorax, subquadrate, posterior angles broadly rounded, base slightly emarginate, and impressed in the middle; it is finely and tolerably densely punctured; the eyes are small; the antennæ moderately thick. The thorax is longer than wide, a little narrowed behind, punctured as the head; anterior constriction distinct. Elytra scarcely wider than the head, parallel, truncate at base, strongly and coarsely punctured, base very slightly prominent each side; the pubescence is scarcely visible. The male has the pygidium prominent.

39. A. **pallens**, pallidus, subtiliter punctulatus pubescens, capite parce granulato-punctato, medio lævi, triangulari, basi emarginato, thorace transverso postice valde angustato, elytris convexis, basi truncatis, abdomine nigricante. Long. ·11.

Lec. Agassiz' Lake Superior, 231.

Shores of Lake Superior. This and the next species differ from all the others, in having the head triangular, with the posterior angles almost acute, and the surface granulated. The eyes are moderately large. The antennæ are slender and long; the thorax is transverse and much narrowed behind. The terminal spurs of the tibiæ are very distinct, and those of the anterior tibiæ unequal; in the male the anterior tibiæ are slightly sinuate internally, and the terminal spur more prominent.

40. A. **granularis**, nigro-piceus, pubescens, capite thoraceque confertim granulatis, illo triangulari basi emarginato, hoc transverso, postice valde angustato, elytris basi valde truncatis confertim punctatis, apice testaceis, antennis tibiis tarsisque testaceis. Long. ·13.

Lec. Agassiz' Lake Superior, 231.

Lake Superior, abundant. Varies in color: α. elytra testaceous, with a broad black band; β. testaceous, band of the elytra and abdomen black; γ. testaceous, elytra with an indistinct fuscous spot at the middle. The sexual marks as in the preceding, with which this species agrees in form. Both species vary in having the thorax sometimes obsoletely channeled.

Species unknown to me:

A. **exilis** Ferté, Anth. 121.
A. **ictericus** Ferté, Anth. 149.
A. **lætus** Ferté, Anth, 157.
A. **melancholicus** Ferté, Anth. 174.
A. **pusillus** Ferté, Anth. 178.
A. **squamosus** Ferté, 216.
A. **lugubris** Ferté, 217.
A. **pallidus** Say, Jour. Ac. Nat. Sc. 5, 245; Ferté, 275.
A. **impressipennis** Ferté, 300.
A. **texanus** Ferté, 301.

TANARTHRUS Lec.

This genus was founded by me in the 5th volume of the Annals of the Lyceum of Natural History, upon a very singular insect having the appearance of a Zuphium. More careful examination has convinced me that my Anthicus alutaceus, described in the same place, must also be referred to this new genus; the mould on the specimens having prevented me at that time from seeing the generic characters. The following characters will separate this genus:

Antennæ in frontem insertæ, sub-12-articulatæ, articulo 11mo elongato, quasi diviso, intermediis turbinatis. Tarsi articulis cylindricis, 4to minore non bilobato; elytra depressa, apice truncata, abdomine breviora; corpus depressum, capite

magno, oculis parvis, palpis articulo ultimo triangulari, angusto, tibiis omnibus apice longius bicalcaratis.

1. T. salinus, depressus rufo-testaceus, tenuiter cinereo-pubescens, subtiliter punctulatus, capite thoraceque nitidis, illo magno basi emarginato, antennarum articulo ultimo præcedentes quatuor æquante. Long. ·21.

Lec. An. Lyc. 5, 156.

This curious insect was found on the shore of a salt lake in the northern part of the great Colorado desert. It runs very actively and frequently takes flight, like Cicindela or Bembidium.

Reddish brown, with very fine cinereous hair. Head flat, quadrate, shining, finely punctured, posterior angles rounded, occiput channeled, margin almost acute. Thorax narrower than the head, a little longer than wide, trapezoidal, slightly narrowed behind, base finely margined, slightly foveate in the middle; disc flat, finely punctured; elytra not wider than the head, parallel, truncate at base and tip, opaque, very finely and densely punctured, dusky towards the base. Legs long, moderately slender; posterior tarsi nearly as long as the tibiæ. The male has the anterior tarsi a little dilated.

2. T. alutaceus, elongatus, fere depressus, niger, subtilissime alutaceus, brevissime pubescens, capite postice subtruncato, thoraceque punctulatis, elytris obsolete punctulatis, antennis testaceis articulo ultimo præcedentes duos æquante. Long. ·1.

Anthicus alutaceus Lec. An. Lyc. 5, 155.

Found at San Diego, California. A much smaller specimen, with the head more rounded behind, was found at the Gila.

Elongate, almost depressed, black, opaque, scarcely pubescent. Head large, slightly convex, finely punctured, base truncate, with the margin not acute, posterior angles broadly rounded. Thorax narrower than the head, trapezoidal, narrowed behind, base margined; finely punctured. Elytra scarcely wider than the head, truncate at base and tip, very finely rugous, and very obsoletely punctured. Posterior tarsi shorter than the tibiæ. The last joint of the antennæ is here only twice as long as the preceding, and the constriction is at its middle, so that it appears like two ordinary joints. It was not until I removed the mould very carefully, and counted the joints, that I became aware of the affinity with the first species.

The Committee on the following by Dr. Woodhouse, reported in favor of publication in the Proceedings:

Description of a new species of Ectopistes.

BY S. W. WOODHOUSE, M. D.

ECTOPISTES *marginella*, nobis.

Form.—Bill short and slender, wings long and pointed, second quill distinctly longest, its general form resembling E. Carolinensis, but much more delicate.

Dimensions.—From tip of bill to end of tail, total length of skin 9 3-10ths inches; wing from flexure 5 4-10ths inches; tarsus 7½-10ths; bill total length 6-10ths, from gap 7-10ths; tail 4 inches.

Color.—Bill dark brown; upper surface of the head brown, mottled with black and light brown; head, front of neck, back, and upper tail coverts, of a lightish brown; a brownish white band extends from each eye across the forehead; one reddish brown from the anterior part of the orbit to the back of the head; throat very light brown inclining to white; the feathers of the lower portion of the throat are black, with a light brown margin, giving the appearance of circular bands of black and white; breast, belly, vent and under tail coverts light fawn; sides lead color; primaries dark brown; the first, second and third quills have a white line extending along their outer edge; secondaries are rather lighter, and have a light brown margin,—on their upper surface they are reddish brown; tertiary feathers and wing coverts reddish brown, with a light margin, and on their outer edge an elongated black spot; tail consists of fourteen feathers, the two central of which are dark brown; the four lateral feathers are black near their extremity and white at tip; and the six lateral have the black, but are light brown at tip; tarsus and feet light red.

Habitation.—Cross Timbers.

Observations.—This specimen somewhat resembles the E. Carolinensis, but on examination proves to be totally different. I procured it in the cross timbers on the North Fork of the Canadian, on the 6th of September, 1850, whilst attached to the Creek boundary survey as surgeon and naturalist, under the command of Lieut. J. C. Woodruff, Topographical Engineers, U. S. Army. I saw several of them feeding on the ground, and was immediately struck with their size, being so much smaller than our common dove. I was unable, however, to procure more than one specimen, and this on dissection proved to be a male.

The Committee on Mr. Lea's communication entitled, "Description of a fossil Saurian of the New Red Sandstone of Pennsylvania, &c.;" and "On some new fossil Molluscs from the Carboniferous Slates of the Wilkesbarre Coal Formation," reported in favor of publication in the Journal.

The Report of the Corresponding Secretary, for February, March and April, was read and adopted.

Dr. Rand offered the following, which was adopted:

Resolved, That Members of the State Medical Society, now in session in Philadelphia, be invited to visit the Museum of the Academy on the afternoons of this week, between the hours of 3 and 6 o'clock.

On leave granted Mr. Lea made a few observations on a cast of the impressions of Sauropus primævus, *Lea*, found in the Red Sandstone of Pottsville, Pennsylvania.

ELECTION.

Mr. Edward S. Buckley, and Mr. Thomas F. Seal, of Philadelphia, were elected *Members* of the Academy.

June 1st.

Vice-President BRIDGES in the Chair.

A letter was read from the Librarian of the British Museum, dated London, 1st May, 1852, acknowledging the receipt of late numbers of the Proceedings.

Also one from Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, dated Washington, April 6th, 1852, accompanying the donation of Charts announced this evening.

Also from the Rev. M. A. Curtis, dated Society Hill, (S. C.) May 24th, 1852, accompanying the donation of plants from Syria, Egypt, &c., announced this evening.

Mr. Lea read a paper entitled, "Description of a new species of Eschara, from the Eocene of Alabama," which being intended for publication in the Proceedings, was referred to Dr. Rand, Mr. Charles E. Smith and Dr. Ruschenberger.

Dr. Woodhouse presented a paper, intended for publication, describing a new species of Sciurus; which was referred to a Committee consisting of Dr. Watson, Dr. Leidy and Major LeConte.

Mr. Lea called attention to the stone slab containing supposed imprints of human feet, deposited by him this evening. This slab is from the limestone formation immediately underlying the coal near Alton, Illinois. The impressions have evidently been sculptured, and bear the marks of some blunt instrument with which they have been executed. Mr. Lea observed that these are not the first instances of this kind, which have been noticed, and referred to a description of a similar slab published in Silliman's Journal several years since.

Dr. Owen stated that the slab of limestone alluded to by Mr. Lea as found on the Mississippi near St. Louis, is the same which is now preserved in his (Dr. Owen's) collection, and the one on which two articles have appeared in Silliman's Journal; one by Mr. Schoolcraft and one by himself. At the conclusion of this latter article, entitled "Human footprints in solid limestone," it was given as his opinion, that these feetmarks were carved on the rock by the aborigines.

Since that article appeared, Dr. Owen had obtained the most satisfactory corroboration of this inference in two large slabs of magnesian limestone, of lower Silurian date, obtained at Moccasin-track Prairie, in Missouri, which slabs contained a great many carvings of human feet, as well as those of animals, and rude imitations of the human figure, something like figures made in gingerbread. The footmarks bear indubitable tool marks, and some are deficient in the true number of toes, while, in others, the foot is distorted, with the little toe standing out almost at right angles.

These specimens, as well as that of Mr. Lea, show clearly that the aborigines of Missouri had the same propensity for carving the imprint of feet, as the Southern and Western aborigines of this continent had for representing the hand on the walls of the ancient edifices and in other situations.

Any one acquainted with Indians knows that there is no subject which they study more closely than all kinds of tracks: in fact their life, their maintenance and the whole security of the savage depend on an intimate and cunning knowledge of podology.

Dr. Owen intends giving, at some future time, a more detailed description of these slabs of magnesian limestone from Moccasin-track Prairie, which are, probably, the most interesting specimens of the kind ever yet discovered.

Mr. Lea exhibited specimens of shells from the drift on the line of the Columbia Railroad, about three miles from Philadelphia. These are the first organic remains of this kind found in this vicinity. Mr. Lea believed them to have been unquestionably derived from the formation No. 2 of the Pennsylvania Survey. Although much mutilated, they can be classified.

Dr. Leidy called attention to a fossil tooth of Tapir presented by Dr. Hays. This is the only portion of the animal known. He proposed for it the name of *Tapirus Haysii*.

June 8th.

Vice President BRIDGES in the Chair.

Dr. LeConte presented for publication in the Journal, a paper entitled "Synopsis of the species of Pterostichus *Bon.*, and allied genera inhabiting temperate North America," which was referred to a Committee consisting of Dr. Hallowell, Dr. Leidy and Mr. Kilvington.

June 15th.

Major JOHN LECONTE in the Chair.

A letter was read from the Secretary of the Smithsonian Institution, dated Washington, June 9th, 1852, acknowledging the receipt of late numbers of the Proceedings of the Academy.

Dr. Charles M. Wetherill read a paper entitled "Chemical investigation of the Mexican Honey Ant," which being intended for publication in the Proceedings, was referred to a Committee consisting of Dr. Leidy, Dr. Genth and Dr. LeConte.

June 22d.

Vice President BRIDGES in the Chair.

A letter was read from the Geological Society of London, dated 1st May, 1852, acknowledging the receipt of the Journal and Proceedings.

Also letters from the Trustees of New York State Library, dated Albany, June 15, 1852, and from the Corresponding Secretary of the Academy of Arts and Sciences, dated Boston, June 16, 1852, severally acknowledging the receipt of late numbers of the Proceedings.

Also a letter from the Librarian of the American Academy, asking for certain numbers of the Proceedings, to complete the series of the same in that Institution.

Dr. Genth read a paper "On some Minerals which accompany Gold in California;" and a second paper entitled "On Strontiano-Calcite, a new Mineral;" both of which were referred to a Committee consisting of Dr. Le Conte, Dr. Wetherill and Mr. Ashmead.

Mr. Cassin asked the attention of the Academy to the collection of Birds presented by E. K. Kane, M. D., of the United States Navy, late Surgeon to Grinnell's Expedition in search of Sir John Franklin, and collected by him during the absence of the Expedition in the Arctic regions.

Nearly all the specimens are unusually valuable and interesting on account of their representing species in much more mature plumage than is commonly seen either in Museums or in recent specimens obtained so far south as Philadelphia. This circumstance is of course readily accounted for, as all the species in the collection are only to be met with while in summer plumage in the remote regions visited by the Expedition, and their interesting character may be inferred from that fact.

Mr. C. regarded the specimens of the Brant, (Bernicla brenta, Pallas) and of the Ivory Gull (Larus eburneus, Phipps) as of especial interest.

June 29th.

Vice President BRIDGES in the Chair.

The Committee on Dr. Owen's paper on a new Mineral from California, reported in favor of publication:

Notice of a New Mineral from California.

By D. D. OWEN, M. D.

Mr. Henry Pratten, one of my assistants in the geological surveys in the North West, in 1848 and 1849, went to California in the spring of 1850, and returned last February. Being interested in mineralogy and geology, he made observations in these departments of science, both on his way out and during the time he remained there.

The mineral in question he obtained at a locality known as the Wisconsin and Illinois claim, near Nevada City, at which place he resided most of the time he remained in California.

At the time he collected this mineral it struck him as something remarkable and different from anything he had previously observed; and he made at the time some experiments on its blowpipe reactions, without being able positively to decide what it might be.

He then first submitted it to a distinguished mineralogist, who referred it to the species Karpholite.

In comparing its blowpipe reactions with that mineral, Mr. Pratten doubted the correctness of the conclusion that it belonged to the species Karpholite, and so did Dr. Norwood, who also examined its blowpipe reactions, and they came to the conclusion that its indications before the blowpipe resembled more those of Molybdic acid.

When I returned home last March, Mr. Pratten submitted it to me and I made a qualitative examination of the mineral in the humid way, and ascertained, from the reactions of the solution of the mineral with sulphuretted hydrogen, iodide of potassium, and ferro-cyanide of potassium, that the principal constituents were molybdenum and iron.

I found, moreover, that it was easily acted on by liquid ammonia, the molybdenum being dissolved, while oxide of iron was set free in brownish red flocks.

These chemical reactions proved that though the mineral resembles Karpholite in the yellow color of its fibrous, acicular, tufted crystals, it is quite different in its chemical constitution.

I made, also, an approximate quantitative analysis on a centigramme of the mineral, which was all that could be spared at that time, by solution in liquid ammonia, collecting the precipitated iron on a filter, washing and weighing it, after ignition. The molybdenum was then separated by sulphuretted hydrogen.

The solution freed from molybdenum was evaporated with addition of hydrochloric acid to free the solution of HS; after filtration it was evaporated to dryness and ignited, and the small percentage of alkali and magnesia weighed together; the magnesia, after being separated by peroxide of mercury, was weighed by itself.

The result of the analysis gave:

$\dot{H}$=Water	15	
$\dddot{Mo}$ (?) Molybdic acid (?)	50	compound of molybdenum and oxygen
$\overset{\cdots}{\underline{F}}e$ Peroxide of iron	35	
$\bar{A}$lkali	8	
$\dot{M}g$—Magnesia	3	

That the molybdenum exists in this mineral as molybdic acid is altogether probable from the fact of liquid ammonia acting on it so readily.

The constituents of Karpholite, by two analyses—one by Stromeyer and one by Steinman, as recorded in Dana's Mineralogy, are:

	By Stromeyer.	*By Steinman.*
$\dddot{\text{Si}}$—Silica	36·15	37·53
$\underline{\dddot{\text{Al}}}$—Alumina	28·67	26·47
$\underline{\dot{\text{Mn}}}$—Oxide of Manganese	19·16	18·33
$\dot{\text{Fe}}$ " Iron	2·29	$\underline{\dddot{\text{Fe}}}$ 6·27
$\dot{\text{H}}$ Water	10·78	11·36
HF—Hydrofluoric acid	1·47	

Karpholite is therefore essentially a hydrated silicate of alumina and manganese, and entirely different in its composition from the mineral in question.

Before the blowpipe this mineral fuses readily, and a sublimate is formed, which, if the mineral is supported on its quartz matrix, forms a bluish ring on the quartz; and a brilliant yellow color is imparted to the flame. With mic. salt, in the interior flame, it forms a green bead.

In its easy fusibility and in the production of this curious bluish ring, condensed on the quartz around the fragment exposed to the blowpipe flame, this mineral is readily distinguished by the blowpipe from Karpholite, which fuses with difficulty, and forms no such ring.

In the works on mineralogy, there is a meagre notice given of an ore of molybdenum, under the name of molybdic ochre or oxide of molybdenum, which occurs in powdery incrustations of various shades of yellow, and is in fact molybdic acid, being composed of molybdenum 63·66, and oxygen 33·39 ($\dddot{\text{Mo}}$.); but as this mineral contains no iron, is produced from the decomposition of the sulphuret of molybdenum, and has never been found in the fine delicate tufted acicular crystalline form, it is probably not the same as this California mineral.

I have not yet had a sufficient supply of the ore to ascertain the proportion of oxygen united with the molybdenum in this mineral, but I am led to believe that it exists in the state of molybdic acid, from the fact of ammonia acting on it so readily. I think, moreover, that the molybdic acid is combined with the iron, for the pure rich yellow color of the mineral forbids the idea of the iron being only mechanically mixed; and besides the iron is very nearly in the proportion to form a subsalt: hence I infer that this mineral must be a submolybdate of iron.

The Committee to which was referred the following by Mr. Lea, reported in favor of publication in the Proceedings:

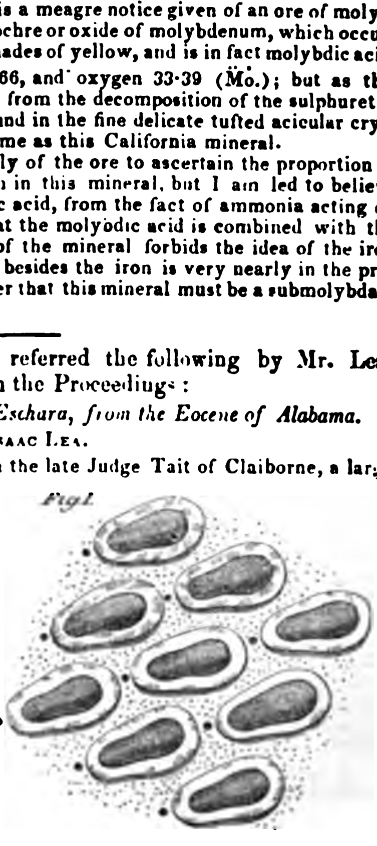
Description of a new species of Eschara, from the Eocene of Alabama.

By Isaac Lea.

Many years since I received from the late Judge Tait of Claiborne, a large number of fossils from the Eocene beds of that district, and among the sand was found a fragment of this interesting genus. I did not then characterise it, in the hope of getting a more perfect specimen. I have not, however, seen any other but this fragment.

There have been a number of species described by Mr. Lonsdale, in the Journal of the Geological Society, vol. i., from the Tertiary of the U.S. These were taken by Sir C. Lyell to London, on his return from one of his tours to this country. The species which I propose to characterise, differs in its form

Fig. 1



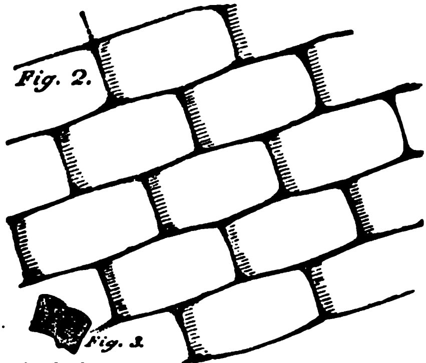


Fig. 2.

Fig. 3.

very strikingly from the figures and descriptions of Mr. Lonsdale. In Michelin's Iconographie, plates 78 and 79, there is a species figured from Claiborne, which resembles this, but is not the same. In the cuts annexed, fig. 1 represents a highly magnified view of the external surface, with its foramina and numerous indented points. Fig. 2 represents the dorsal surface; and fig. 3 represents the size of the specimen, with its natural appearance.

Eschara Claibornensis.—Foliaceous; cells ovate, constricted near the middle, boundary slightly raised, thickened and smooth, mouth rounded at both ends and larger at the upper one; a small round foramen at the lower end of each larger foramen; surface between the foramina with numerous irregular pits; dorsal separation of opposed layers perfect, vesicle rather large, oblong, with the angles rounded.

The Committee on a paper by Dr. Woodhouse, describing a new species of Sciurus, reported in favor of publication in the Proceedings.

Description of a New Species of Sciurus.

By S. W. Woodhouse, M. D.

SCIURUS DORSALIS, nobis.

Description.—Ears large and broad, tufted with long black gray hairs. General color above dark gray, with the exception of the dorsal line and a band extending along the external base or hind part of the ear, which is of a rich ferruginous brown color; beneath white, with the exception of the perineum, which is gray; cheeks grayish white; tail very large and broad, gray above, with a broad white margin, and white beneath.

Fur long, compact and soft; claws long, very strong and much curved, of a black color, with the exception of their points which are light and almost transparent; whiskers very long and black; iris dark brown.

Dimensions of dried skin.

	Inches.
Length from nose to root of tail, about	13
From heel to point of longest nail,	2 8-10ths.
Height of ears externally,	1 3-10ths.
" " to end of hair,	2 8-10ths.
Breadth of ear,	1
From ear to point of nose, about	1 7-10ths.
Tail vertebræ, about	8
" to end of fur, about	11

Remarks.—This beautiful squirrel I procured whilst attached to the expedition under the command of Capt. L. Sitgreaves, Topographical Engineer U. S. Army, exploring the Zuni and the Great and Little Colorado rivers of the West, in the month of October, 1851, in the San Francisco Mountain, New Mexico, where I found it quite abundant, after leaving which, I did not see it again. On the receipt of my new Mexican collections (which contain some fine specimens, with their crania,) I will give a fuller description.

The Committee on the following communication from Dr. C. M. Wetherill, reported in favor of Publication :

Chemical Investigation of the Mexican Honey Ant.

By Charles M. Wetherill, Ph. D.

Several of these curious insects, described in a late number of the Proceedings, were handed to me some time since by Dr. Leidy, with the request that I would make a chemical examination of them. I was fearful at the time, from the scarcity of material, and from the endosmosis and exosmosis that had apparently taken place, (as the ants had been preserved for some time in alcohol,) that I could not arrive at satisfactory conclusions. The difficulties were not, however, as great as anticipated. The following are the results of my experiments.

The ants were filled with a varying quantity of the honey; in some the abdomen was distended, in others quite flaccid. The liquid also varied; in some being of light amber color, and in others deeper in hue. Six of the average sized insects weighed 2.6533 grammes, their bodies weighed 0.298 gr. The honey, consequently, of the six ants weighed 2.3653 grammes, and the average quantity of honey in a single ant 0.3942 gr. Since the average weight of a single ant is 0.048, it follows that the honey which an average one of these ants contains is 8.2 times greater than the weight of its body. The density of the ants, when filled with honey, and that of their bodies, was ascertained by weighing in alcohol of density 0.8309, and reducing to water as unity.

The following are the data :—

2.6533 grammes of the ants, with their honey, weighed in alcohol 0.9310 ; and of the bodies without the honey 0.298 weighed 0.061 in alcohol.

From which the density is calculated, for the ants filled with honey at 1.28, and for the bodies alone 1.05.

The syrup extracted from the ant had an agreeable sweet taste, the odor very much resembling that of the syrup of squills. It reacted slightly acid to blue litmus paper. When evaporated by the heat of steam, it dried to a gummy mass, which did not exhibit traces of crystallization after standing for a couple of weeks. It was very hygroscopic, becoming quickly soft from the absorption of water from the atmosphere.

The sugar dried, as stated, by steam heat, dissolved without residue in ordinary alcohol, leaving a residue in nearly absolute alcohol. This residue dissolved in ordinary alcohol completely. The alcoholic solutions were all set aside, for several days, for crystallization, with negative results. These alcoholic solutions had exactly the smell of the perfumed bay rum. I call attention to these peculiar odors, as perhaps capable, with additional evidence, of throwing some light upon the origin of the honey.

When exposed for some time in vacuo over sulphuric acid, the syrup dries up to a transparent gum-like mass, but without any signs of crystallization during the process. 2.1065 of the syrup, after standing thus in vacuo for about two weeks, weighed 1.4425, equal to a per centage of 68.478, sugar in the syrup. When thus dried it had the rich sugar smell of candy made by heating sugar and butter together.

Some of the honey was set aside for crystallization as removed from the insect. After many days it was examined, but no traces of crystallization could be observed, either with the naked eye or with the microscope. Some of the honey was examined alone, under the microscope with high powers ; no crystals were observed, but here and there fragments of organic tissue. Examined by polarized light, some of these stood out in bright relief against the dark ground of the field, and were at first mistaken for fragments of crystals, until a capillary like tube was observed, which resembled these fragments, and which changed its color by the rotation of the polarization's plane.

No change could be observed after touching the drop under the microscope with a drop of solution or tincture of iodine.

A drop of the honey, in a watch glass, blackened when exposed to a steam heat with dilute sulphuric acid.

When heated with the blue solution obtained by adding tartaric acid or solution of potassa to sulphate of copper, a red precipitate of the suboxide of copper fell.

Chloride of barium, ferrocyanide of potassium, and sulphate of copper, added to an aqueous solution of the honey, gave no precipitates, either in the cold or by heat.

Nitrate of silver gave in the cold a whitish precipitate, which changed to dark brown by heating.

A portion of the honey heated on platinum foil blackened, gave out fumes, and the odor of burnt sugar, leaving a porous coke, which burned off and left an almost imperceptible ash.

A portion of the substance which had been left in vacuo for two weeks was taken for analysis by combustion with oxide of copper and chlorate of potassa.

As the honey thus dried was not perfectly hard, but of a sticky nature, it was necessary to introduce it into the combustion tube upon a piece of glass. 0.497 of honey gave 0.306 of water, and 0.684 of carbonic acid, corresponding to a per centage of C = 37.525 and H = 6.8410 by loss = 55.634. This corresponds, as nearly as could be expected, under the circumstances of the analysis, with the formula of crystallized grape sugar $C_{12} H_{14} O_{14}$ as may be seen by the following comparison:

	By Calculation.	By Analysis.	Anal. Starch Sugar by De Saussure.
C	36.363	37.525	37.29
H_{14}	7.071	6.841	6.84
O_{14}	56.566	55.634	55.87
	100.000	100.000	100.00

The following analysis may be compared with my results: 1. Diabetic sugar by Peligot. 2. Sugar of grape, by De Saussure. 3. Cane Sugar, by Liebig. 4. Sugar of honey, by Prout.

	I.	II.	III.		IV.
C.	36.7	36.71	42.30		36.36
H	7.3	6.78	4.45	C H	63.64
O	56.0	56.51	51.50		
	100.0	100.00	100.00		100.00

It results I think, from these experiments that the honey contained in the Mexican ant is a nearly pure solution of the sugar, so called, of fruits which is in a state of hydration, isomeric with grape sugar, $C_{12} H_{14} O_{14}$, and differing from grape sugar in not crystallizing. The phenomena of circular polarization differ in these two named sugars; but the want of sufficient material rendered such comparison impossible. The honey of bees is a mixture of these two kinds of sugar; and as it is obtained from the nectar of flowers containing cane sugar, the transformation into fruit and grape sugars must take place in their bodies.[*] As the ant honey yields, among its reactions, one of cane sugar, viz: that of blackening when heated with dilute sulphuric acid, it is possible that it may contain an admixture of cane sugar, which would account for the imperfect correspondence of the analysis with the per centage calculated from the formula. It renders also the supposition plausible, that these ants obtain their honey from the same source as the bee.

With regard to the acidity of the honey, want of material prevented any experiments. Can it be formic acid, or is it acetic from the oxidation of the alcohol in which the ants were preserved?

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[*] Loewig-Chem. der Org. Verbindungen.

A portion of the alcohol (reacting acid like the honey) neutralized by caustic potassa, then distilled with sulphuric acid, gave an aqueous acid liquid, which, on addition of nitrate of silver, gave a whitish precipitate, becoming black on boiling, rendering the supposition of formic acid probable.

The Committee on two papers by Dr. Genth, entitled respectively "On some Minerals which accompany Gold in California," and "On Strontiano-Calcite, a new Mineral," reported in favor of publication in the Proceedings.

On some Minerals, which accompany Gold in California.

By Dr. F. A. Genth.

A few days ago I had an opportunity of examining a lot of Gold from the north fork of the American River, 30 miles from Sacramento City.

The gold was in very fine scales and but a few larger pieces among them. The following minerals have been found mixed with it, viz :

1. *Hyacinth* in almost microscopic crystals, of different lengths. The longer ones exhibit the form of the primitive square octahedron combined with the second square prism ; the shorter ones have besides, a second octahedron, a double eight-sided pyramid and the first prism ; one of the crystals I found having a basal plane besides. They are colorless or show a smoky tinge ; only a few less perfect crystals have a grayish-brown color. Lustre perfectly adamantine.

2. *Chromic Iron* in rounded grains, which sometimes show faces of the regular octahedron. Color between jet-black and iron-black. Lustre submetallic. Streak brown. Not magnetic. Before the blowpipe with borax it gives in both flames emerald-green beads. The powder was decomposed by bisulphate of potash, and the presence of sesqui-oxide of iron and chromium likewise ascertained in the moist way.

3. *Ilmenite* occurs in iron-black grains, which show sometimes distinctly a basal cleavage. Lustre submetallic. Streak brownish, and iron-black. Before the blowpipe it gives a blood-red bead, which, when saturated, can be easily enameled. The powder is easily decomposed by bisulphate of potash ; the fused mass dissolves completely in diluted hydrochloric acid, and this solution, when evaporated, lets fall a white powder, which gives with borax and microcosmic salt the characteristic reactions of titanic acid. The solution in hydrochloric acid contains nothing but sesqui-oxide of iron.

[Both Chromic Iron and Ilmenite seem to have been confounded with magnetic iron.]

4. *Platinum.*—A few steel-colored rounded grains were observed, and of

5. *Iridosmine*, a few lead-colored scales. The quantity of both Platinum and Iridosmine was too small for further examination.

I will mention here, that I have examined some white grains and scales from Stanislaus in California, which were presented to me by Prof. John Frazer, whose brother had them collected.

The few scales of gold mixed with them were extracted by diluted aqua regia. I then treated them with concentrated aqua regia as long as it acted upon.

The solution contained almost pure bichloride of platinum with but a trace of iridium ; neither rhodium nor palladium could be detected in it.

The residue consists of six-sided scales of a color between lead- and tin-white. On heating them upon platinum foil, they give out a strong odor of osmium ; they are therefore the combination $Ir\ Os_4$ (or $Ir\ Os_3$) known under the name of *Sisserskite.* Being heated thus, most of the scales become iridescent and assume, like steel, yellow, orange and blue colors. I do not know that this reaction has been observed. In order to ascertain whether every kind of iridosmine gives it, or whether it is peculiar to that from California, I treated some from the Oural Mountains in the same manner, and found that most, but not all of the lead-colored scales are oxydized and assume yellow, orange and blue colors. This reaction seems therefore to be an important one to distinguish Sisserskite from Newjanskite. It is very likely, too, that we find in nature but two combinations of Iridium and Osmium, $Ir\ Os$ and $Ir\ Os_4$ and that $Ir\ Os^3$ is $Ir\ Os^4$ mixed with some $Ir\ Os$, as it is very difficult to distinguish their color.

On Strontiano-calcite, a New Mineral.

By Dr. F. A. Genth.

Primitive form an obtuse rhombohedron (as it seems to show cleavage parallel to the planes of a rhombohedron, similar to that of calcite); the secondary forms which I observed were the second acute rhombohedron (analogous to that of calcite of 65° 50′) and its corresponding scalene-dodecahedron. Crystals microscopic and not very distinct; in globular masses formed by an aggregate of rhombohedrons, every globule terminating in the above-mentioned acute rhombohedron. Fracture uneven. H. = 3.5. Sp. gr. = ?

Colorless and transparent at the points of the aggregations, which are white and translucent. The colorless crystals have a vitreous, the white ones a somewhat pearly lustre.

When heated before the blowpipe it gives out a brilliant light, imparts to the flame a slight crimson color, and is rendered caustic. Easily soluble in acids with disengagements of carbonic acid. The solution gives a white precipitate with sulphate of lime, but not with sulphate of strontia; it therefore contains strontia. After, (in another quantity of the solution,) strontia was precipitated with sulphate of potash, the addition of oxalate of ammonia produced a precipitate of oxalate of lime.

The quantities I had at my disposal were too small to admit of a quantitative analysis, but I presume from the quantities, precipitated with sulphate of potash and oxalate of ammonia, that lime and strontia are contained in Strontiano-calcite in about equal proportions.

The specimen was presented to me by William Wagner, Esq., who collected it in the neighborhood of Girgenti in Sicily, where it, according to his statement, is of rare occurrence and associated with celestine and sulphur.

In the chemico-mineralogical system it is to be placed between Dufrenoy's Dreelite and Plumbocalcite.

Of the carbonates which have isomorphous bases, of carbonate of lime only, two forms, rhombohedron and rhombic prism, have been observed; of carbonate of lead, strontia and baryta, only the rhombic form is known; but when in combination with carbonate of lime, they all likewise crystallize in the rhombohedrical form, thus forming Plumbo-calcite, Strontiano-calcite and Dreelite. It is very likely, that we one of these days will meet with rhombohedrical forms of the pure carbonates of lead, strontia and baryta.

The Committee on a paper by Messrs. Audubon and Bachman, read this evening by special permission, describing a new species of North American Fox, reported in favor of publication:

Description of a new North American Fox. Genus Vulpes, Cuv.

By Audubon and Bachman.

VULPES UTAH.

V. corpore grandiore, pilis velleris longioribus nec non gracilioribus quam in V. fulvo, cauda magna cylindracea.

Specific characters.—Larger than Vulpes fulvus; fur longer and finer than in that species; tail large and cylindrical.

Dimensions.

	Feet.	Inches.
From point of nose to root of tail,	2	8
Tail, (Vertebræ,)	1	4
" (to end of hair,)	1	8
Circumference of tail, (broadest part,)	1	8
From shoulder to fore-feet,	1	5
From rump to hind-feet,	1	6
Height of ears, (posteriorly,)		4
From point of nose to eye,		3⅛
Longest hairs on the brush,		5
" on the body,		3

Description.—Claws slightly arched, compressed, channelled beneath, horn color; hair, of two kinds, first, a coarse and long hair covering the fur beneath it; crimped and wavy, as in the silver gray fox. Fur plumbeous at the roots, gradually becoming dark brown towards the tips in those parts of the body which are dark colored on the surface; in those parts which are white, the fur is white from the roots, and on no part of the animal does it present any annulations.

The long hairs are dark-brown from the roots, yellowish-white near the middle of their length, and are tipped with black.

On the under surface the hairs are principally white their whole extent, with a few black ones intermixed; the fur on the tail is rather less fine and more woolly than on the body.

Feet covered with soft hair reaching beyond the toes; on the forehead the hair is rather coarse and stout, with fine fur beneath. From this intermixture of hairs the animal is greyish-white on the head, dark-brown on the neck, grayish-brown on the dorsal line and on the sides; the throat, under surface of the body, insides of legs, and feet are black.

The tail is irregularly banded with dark brown and dull white, the tip white for about three inches.

Another Specimen.—Nose, both surfaces of the legs, and behind the ears, dark reddish-brown; whiskers black; under side of neck, and a line on the belly, liver brown. Fur on the back very fine, and dark ashy-gray from the roots; the longer hairs at the back are black at the roots, and are broadly tipped with white; fur on the sides, cinereous at the roots, and yellowish-white from thence to the end.

There is a reddish tinge on the neck, extending to the shoulders; sides of the face grizzly-brown; the hair on the tail is irregularly clouded with brown and dull white, and is lightest on the under surface.

This animal was first noticed, by Lewis and Clarke, as the large red fox of the plains, (vol. 2, p. 168,) and was referred to by us in the first volume of the Quadrupeds of North America, p. 54, where we described it from a hunter's skin.

Having obtained a beautiful specimen from Captain Rhett, of the United States Army, we now propose for it the name of *Vulpes Utah*, as it is, so far as our information extends, chiefly found in the Utah territory, although it probably ranges considerably north of the Great Salt Lake.

The habits of this beautiful fox are similar to those of the Red Fox, and it runs into many varieties of color.

Captain Rhett informed us that he killed the specimen, kindly presented to us by him, near Fort Larimee.

Several specimens of *Vulpes Utah* have been received at the Smithsonian Institution, and it will probably soon be well known.

The Committee to whom was referred a paper by Dr. Le Con entitled "Synopsis of the species of Pterostichus," reported in favor publication in the Journal.

ELECTION.

Mr. Joseph Lea and Dr. William H. Tingley, both of Philadelphi were elected *Members* of the Academy.

July 6*th*, 1852.

Dr. ELWYN in the Chair.

A paper was presented from Professor S. F. Baird and Mr. Charles Girard, intended for publication in the Proceedings, entitled "Characteristics of some new Reptiles in in the Museum of the Smithsonian Institution," which was referred to Dr. Hallowell, Dr. Le Conte, and Dr. Leidy.

Dr. Wetherill read a paper intended for publication in the Proceedings, entitled "Further examination of the Phœnixville Molybdate of Lead." Referred to Mr. Ashmead, Mr. Vaux and Dr. Rand.

Dr. Wetherill read a second paper, entitled "Chemical examination of the food of the Queen Bee." Referred to Dr. Bridges, Dr. Rand, and Mr. Vaux.

A letter was read from the Secretary of the American Philosophical Society, dated June 21st, 1852, acknowledging the receipt of No. 2, Vol. 6, and index and title-page Vol. 5, of Proceedings.

Dr. Leidy called the attention of the members to a fragment of a fossil ox head, found by Dr. Samuel Brown in a creek emptying into the Ohio river, and now deposited in the cabinet of the Academy by the American Philosophical Society. Notwithstanding its larger size and its locality, Cuvier considers it the same as the Bos priscus. Harlan named it Bos latifrons. It belongs to a species of Bison, and is, with very little doubt, distinct from the Bison priscus, and should be called Bison latifrons.

Another fragment exhibited belongs to a smaller animal. The horn core is relatively more conoidal and curved than in Bison latifrons. The specimen was found at Big-bone-lick, Kentucky, and probably indicates a distinct species, for which the name Bison antiquus was proposed.

Dr. L. further stated he had been studying the extinct Edentata of North America, and had come to the conclusion, that there were probably four species of Megalonyx, M. Jeffersonii, Harlan, M. laqueatus, Harlan, ?M. potens, *Leidy*, and M. dissimilis, *Leidy;* one species of Mylodon, the M. Harlani, *Owen;* and one species of Megatherium, which is probably distinct from that of South America, and might be called with propriety M. mirabile, Leidy. The jaw figured by Prof. Owen, in the Voyage of the Beagle, Foss. Mam. pl. xxix, Dr. L. observed, he was satisfied did not belong to the Megalonyx Jeffersonii, as supposed by Mr. Owen, but to a new genus and species, for which the name Gnathopsis Oweni was proposed.

July 13*th*.

Vice President BRIDGES in the Chair.

A letter was read from Professor J. P. Kirtland, dated East Rockport, Ohio, June 26th, 1822, accompanying the donations announced at a late meeting of the Academy.

Also a letter from Dr. Johannes Gistl, dated Munich, April 21st, 1852, accompanying his donations to the Library announced this evening.

Dr. Genth read a paper describing a new mineral, Rhodophyllite, which was referred to Mr. Vaux, Dr. Wetherill, and Dr. Bridges.

Dr. Owen, in presenting to the Society a specimen of Fusulina Limestone, and Tutenmergel, made the following remarks :—

The specimen of Fusulina cylindrica is from the carboniferous limestone on the west side of the Missouri river, below Fort Kearney. On one bed of limestone there is a complete agglutinated mass of this interesting little foraminiferous shell, which is almost the form and size of a grain of wheat, so that those unacquainted with the fossil take it to be "*petrified wheat.*"

Previous to its discovery on the Missouri river, during the geological survey made by me in 1849, it had been found, I believe, only in isolated specimens in a siliceous stratum towards the base of the coal measures of Ohio. In Europe it has only been found in Russia. Both in this country and Europe it appears to be confined to the carboniferous rocks.

The specimen of Tutenmergel is from Keeth's Rapid, on the Des Moines river, Iowa, where it occurs in great perfection in very perfect cones with a fine crimped surface, and possessing internally the structure of Arragonite. The Tutenmergel of this locality proves to my mind that its form cannot be due to simple shrinkage of the strata, as believed by most persons, but is a crystallization, with simultaneous infiltration of calcareous waters—a stalactitic formation, not in the atmosphere, but within the substance of its argillaceous matrix.

The bed at Keeth's Rapid is only four or five inches thick; but it occurs in much thicker beds—nine inches or more—lower down near Amsterdam and elsewhere on the Des Moines, but not in as pure a form, and almost of a black color, while the Keeth bed is almost as colorless as calc spar.

July 20th.

Vice President Bridges in the Chair.

Letters were read,

From Professor Lepsius dated Berlin, June 20th, 1852, accompanying his donation to the Library announced this evening.

From Dr. Samuel Webber, of Charlestown, New Hampshire, accompanying specimens of the fins and tail of a Fish, in the substance of which were numerous hard granules. The letter also enclosed the following communication on the subject :—

"In the town of Unity, about twelve miles from the place of my residence, is a small body of water known by the name of *Cold Pond.* It abounds with fish of the kind usually found in such waters, viz., roach, bream, perch and pickerel. They are plump, firm, and well flavored, but almost uneatable in consequence of a peculiarity which I have never observed nor heard of in these kinds of fish in other localities. This peculiarity is that through the bodies of these fish are scattered numerous small blackish grains of a globular form, and of about the size of mustard seed, quite hard, and which annoy the teeth so much in the act of mastication, as to take away all comfort of eating. Sometimes these little bodies are single, sometimes clustered together more or less. They pervade even the fins and tail, as may be seen by some specimens that I forward in company with this brief sketch. Of the nature and cause of this unusual condition of the fish, or of the substance of these little pellets, nothing is known. It has been conjectured that the water of the pond is more or less impregnated, in parts at least considerably, by some mineral spring, and that the particles of some mineral held in solution by it, are taken into the circulation of the fish, and by some process of decomposition are deposited in small tubercular aggregations in the various parts of the body."

July 27th.

Vice-President Bridges in the Chair.

The Committee to which was referred Dr. Wetherill's paper on the Phœnixville Molybdate of Lead, reported in favor of publication in the Proceedings.

Further Examination of the Phœnixville Molybdate of Lead.

By Charles M. Wetherill, Ph. D.

In the Proceedings for the 30th March of this year, is a description of a red variety of Molybdate of Lead, examined qualitatively by me, and in which it is stated that I could not detect chromium ether by the moist way, or before the blow pipe. In the July number of Silliman's Journal, page 105, among the mineralogical notices by Mr. W. T. Blake, he observes that the specimens from the Wheatley mine, which he mistook for chromate of lead, have been found to be the molybdate containing chromic acid. I find also in Dana's Mineralogy, under the head of this mineral, the observation that "a red variety contains a few per cent. of chromic acid." In my former analysis I looked particularly for this acid without finding it. Supposing that Mr. Blake had been more fortunate than myself, I repeated the examination on larger quantities of mineral, and with great care, but have no reason to change what was before written. About one decigramme of the pulverized molybdate was dissolved in boiling concentrated hydrochloric acid. No chlorine could be detected, as would have been the case were chromic acid present. After boiling for some time to reduce the hypothetical acid to sesquioxide of chromium, enough water was added to dissolve the formed chloride of lead, and then sulphuric acid in excess. The solution was yellow, and when drops of the liquid had reached the hot sides of the capsule the blue molybdenum compound was formed, which gave with the yellow solution a green tinge to those parts. The lead being thus separated in combination with sulphuric acid, to the filtrate was added hydrosulphuret of ammonium, which kept in solution the sulphuret of molybdenum thus formed, and precipitated sulphuret of iron, which should contain sesquioxide of chromium, if chromic acid were in the mineral. This sulphuret of iron was removed from the solution, oxidized by nitric acid, precipitated hot by ammonia, then washed, and the ashes of the filter fused with nitre and carbonate of soda. The result was the slighest shade greenish, as if from the presence of minute traces of manganese, but not in the least yellow, nor did it give a yellow solution with water, nor did the solution, neutralized exactly by ammonia and nitric acid, give, as would be the case with chromic acid, the purple red precipitate of the chromate of silver on addition of the nitrate. The reactions of chromium are so decided that the presence of this metal could hardly escape the notice of one looking for it. I have not yet been able to obtain a sufficient quantity of the mineral for a quantitative examination. This compound may possibly be an acid molybdate, analogous to many chromates which when neutral are yellow, and red when acid.

The Committee on the following paper by Dr. Wetherill, reported in favor of publication in the Proceedings.

Chemical Examination of the Food of the Queen Bee.

By Charles M. Wetherill, Ph. D.

A specimen was given to me by Dr. Leidy, from Mr. Langstroth, of the food of the queen bee. It was an oblong mass, consisting of two differently colored layers, the inner one horn-like and transparent, the outer whitish and more opaque. Under the microscope, with high powers, it appears amorphous. It was heavier than water, of the consistency of wax, but sticky and elastic. It contains wax, which is in larger quantity in the white than in the inner layer. Heated on the platinum foil a portion of the body melts and flows to another part of the platinum, where by further heating it diffuses the odor of wax. The residue does not melt, but swells up by greater heat, with a smell of burned leather, and leaves a porous coke, burning off with great difficulty, and with a slight ash. The substance in warm water is softened and partly dissolves, leaving white insoluble flakes; the filtrate gives a precipitate on boiling, which precipitate does not melt by heat, nor is it soluble in alcohol or ether. The original substance does not dissolve in alcohol or ether, but in the latter menstruum is covered on the surface with a white coating. In warm dilute hydrochloric acid it is slightly attacked, but not completely dissolved. Tested for nitrogen by Lassaigne's method, by fusion with sodium and obtaining the precipitate of Prussian blue, it indicated the presence of considerable quantities of that element. As the body appears to be composed of at least three substances, and the quantity at my disposal weighed but three decigrammes, I was unable to subject it to an ultimate analysis.

From its reactions it appears to contain, besides wax, albumen and protein compounds. It is truly a bread containing albuminous compounds, which would probably prove, on analysis, similar to the gluten of wheat, for the nourishment of the plastic organs of the body. The examination of this substance was interesting in connection with the Mexican ant honey. The latter contains no nitrogen, and would therefore seem incapable alone of affording nourishment to the young insect, as supposed by some, and which young, in the case of bees, are fed by pollen. Perhaps the accumulation of honey in the ant is the result of a disease like diabetes; though it would seem improbable that it should be a disease so widely diffused. These ants do not, I suppose, make wax on an analogous substance, which is the use of the honey of the bee.

The examination of compounds occurring in the lower animals, which are also the result of the decomposition of amylaceous and albuminous substances, and a comparison of these compounds with the animal's food, has been much neglected by chemists. Yet it would seem that the study of certain decompositions deemed physiologically important, could be more readily carried out upon those lower orders whose organs are less complex. The food of animals is in general very similar, as well in the percentage proportion of its constituents as in the rational formulæ of its elements. It consists, as is well known, of nitrogenized compounds for formation, and amylaceous ones for respiration. The amylaceous compounds, in particular, have been well studied in all their transformations out of the body, and to a certain extent as occurring in man and in a few animals. The three principal radicals of this class, amyl, ethyl, and formyl, and their compounds and derivatives, are well known. It is therefore significant, and suggestive of further research, when we find the three acids of their alcohol radicals in the animal, as valerianic in the oil of Delphinus globiceps, acetic in man, &c., and formic in the ant; these acids and other products of decomposition of the three radicals being besides found in other animals and in plants, and some in a diseased state of plant or animal. If it be desirable to study that mysterious force, the vital, how can it be done but by its effects, for which nature must be cross-examined in her every form. This is the more important, as we find vitality to determine the resolution of the same food into different products in different animals, as may be required for their existence. We have a beautiful example of this in the case of the bee. One of the simplest transformations of an organic compound is that of cane to grape sugar; it requires merely the absorption of two equivalents of water by the former. Grape sugar appears by the phenomena of fermentation to be more readily decomposable than cane sugar; and we accordingly find this change taking place in the body of the bee in the formation of its honey, which is to be worked up again into wax. When cane sugar is given to bees for the formation of wax, wax is indeed formed, but apparently with more difficulty, and does not detach itself readily as in wax from honey. This excrement of honey compared with food is probably the simplest occurring in animal life.

The relation of food to respiration and nourishment in man and kindred animals has been well set forth by Liebig in his Animal Chemistry. According to this author, an equivalent of starch is changed into fat by losing one equivalent of carbonic acid, and seven equivalents of oxygen. Now, since wax bears a great analogy to the fats, it may be supposed to be derived from honey in a similar manner. Wax composed of cerine and myricine has a composition of $C_{34}H_{34}O_2$; anhydrous grape sugar $C_{12}H_{12}O_{12}$, or three equivalents $C_{36}H_{36}O_{36}$, two equivalents carbonic acid, two of water, and twenty-eight oxygen; three equivalents of grape sugar would yield one of wax. That wax is produced from honey is shown by Grundlach, (Natural History of Bees,) as quoted by Liebig. The air in the hive during the formation of wax should contain an excess of oxygen, which has not been shown by analysis, that I am aware of.

Grundlach supposes that honey is alone necessary to the support of bees without nitrogenized substances like pollen, and instances the fact that bees often starve in April when their honey is consumed, and when they can obtain pollen from the fields, but no honey. But this, perhaps, only proves that much honey is necessary to their existence, owing no doubt to the large expenditure in the formation of wax, and which is not voluntarily but continually going on. For the same author has observed that bees shut up and fed without a queen, will not build up honey comb, although the wax laminæ will continue to be secreted from their bodies. If there is any analogy between bees and the vertebrata, that nitrogenized compounds are as necessary to the formation of the plastic organs as the non-nitrogenized are to the respiration, (and it would seem thus probable from the fact that the queen bee, the fruit of whose labor requires much nitrogen, lives on highly nitrogenized food,) it seems as incredible that bees should be supported entirely by honey, as that man should be by starch only.

A careful examination of the relation between food and its transformation in the bodies of such animals, would no doubt throw great light upon mooted points in physiology; and the many differences in the nature of the products, which could no doubt be reconciled with the laws of chemistry, would in themselves afford one of the strongest proofs in favor of the theories with which they might agree.

The Committee on Dr. Genth's paper, describing a new Mineral, reported in favor of publication in the Proceedings.

On Rhodophyllite, a New Mineral.

By Dr. F. A. Genth.

Primitive form most probably hexagonal; sometimes small six-sided laminæ. Cleavage basal, eminent. Usually in masses consisting of foliated scales.

H = 2.5. Sp. gr. (at 77° F.) = 2·617.

Color of fine scales between greyish and silver-white and peach-blossom red; masses of the latter color. Streak reddish white. Lustre pearly. Subtransparent; sub-translucent. Scales flexible, but not elastic. The powder greasy to the touch.

Yields water in the matrass. Heated before the blowpipe, it becomes silver-white, with a greenish-green tint; small scales are rounded at the edges, and become brownish from the oxidation of the iron; dissolves in borax and microcosmic salt, and gives in both flames emerald green beads; by the latter reagent a skeleton of silicic acid is separated; with soda in the oxodizing flame it forms a yellow mass. Hydrochloric acid apparently does not act upon it; sulphuric acid acts slowly upon the fine powder, but the mineral previously heated to redness is almost completely decomposed by it, with separation of silicic acid as a jelly.

or whether it is peculiar to that from California, I treated some from the Oural Mountains in the same manner, and found that most, but not all of the lead-colored scales are oxydized and assume yellow, orange and blue colors. This reaction seems therefore to be an important one to distinguish Sisserskite from Newjanskite. It is very likely, too, that we find in nature but two combinations of Iridium and Osmium, Ir Os and Ir Os_4 and that Ir Os^3 is Ir Os^4 mixed with some Ir Os, as it is very difficult to distinguish their color.

On Strontiano-calcite, a New Mineral.

By DR. F. A. GENTH.

Primitive form an obtuse rhombohedron (as it seems to show cleavage parallel to the planes of a rhombohedron, similar to that of calcite); the secondary forms which I observed were the second acute rhombohedron (analogous to that of calcite of 65° 50′) and its corresponding scalene-dodecahedron. Crystals microscopic and not very distinct; in globular masses formed by an aggregate of rhombohedrons, every globule terminating in the above-mentioned acute rhombohedron. Fracture uneven. H. = 3.5. Sp. gr. = ?

Colorless and transparent at the points of the aggregations, which are white and translucent. The colorless crystals have a vitreous, the white ones a somewhat pearly lustre.

When heated before the blowpipe it gives out a brilliant light, imparts to the flame a slight crimson color, and is rendered caustic. Easily soluble in acids with disengagements of carbonic acid. The solution gives a white precipitate with sulphate of lime, but not with sulphate of strontia; it therefore contains strontia. After, (in another quantity of the solution,) strontia was precipitated with sulphate of potash, the addition of oxalate of ammonia produced a precipitate of oxalate of lime.

The quantities I had at my disposal were too small to admit of a quantitative analysis, but I presume from the quantities, precipitated with sulphate of potash and oxalate of ammonia, that lime and strontia are contained in Strontiano-calcite in about equal proportions.

The specimen was presented to me by William Wagner, Esq., who collected it in the neighborhood of Girgenti in Sicily, where it, according to his statement, is of rare occurrence and associated with celestine and sulphur.

In the chemico-mineralogical system it is to be placed between Dufrenoy's Dreelite and Plumbocalcite.

Of the carbonates which have isomorphous bases, of carbonate of lime only, two forms, rhombohedron and rhombic prism, have been observed; of carbonate of lead, strontia and baryta, only the rhombic form is known; but when in combination with carbonate of lime, they all likewise crystallize in the rhombohedrical form, thus forming Plumbo-calcite, Strontiano-calcite and Dreelite. It is very likely, that we one of these days will meet with rhombohedrical forms of the pure carbonates of lead, strontia and baryta.

The Committee on a paper by Messrs. Audubon and Bachman, read this evening by special permission, describing a new species of North American Fox, reported in favor of publication:

Description of a new North American Fox. Genus Vulpes, Cuv.

By AUDUBON AND BACHMAN.

VULPES UTAH.

V. corpore grandiore, pilis velleris longioribus nec non gracilioribus quam in V. fulvo, cauda magna cylindracea.

Specific characters.—Larger than Vulpes fulvus; fur longer and finer than in that species; tail large and cylindrical.

Dimensions.

	Feet.	Inches.
From point of nose to root of tail,	2	8
Tail, (Vertebræ,)	1	4
" (to end of hair,)	1	8
Circumference of tail, (broadest part,)	1	8
From shoulder to fore-feet,	1	5
From rump to hind-feet,	1	6
Height of ears, (posteriorly,)		4
From point of nose to eye,		3½
Longest hairs on the brush,		5
" on the body,		3

Description.—Claws slightly arched, compressed, channelled beneath, horn color; hair, of two kinds, first, a coarse and long hair covering the fur beneath it; crimped and wavy, as in the silver gray fox. Fur plumbeous at the roots, gradually becoming dark brown towards the tips in those parts of the body which are dark colored on the surface; in those parts which are white, the fur is white from the roots, and on no part of the animal does it present any annulations.

The long hairs are dark-brown from the roots, yellowish-white near the middle of their length, and are tipped with black.

On the under surface the hairs are principally white their whole extent, with a few black ones intermixed; the fur on the tail is rather less fine and more woolly than on the body.

Feet covered with soft hair reaching beyond the toes; on the forehead the hair is rather coarse and stout, with fine fur beneath. From this intermixture of hairs the animal is greyish-white on the head, dark-brown on the neck, grayish-brown on the dorsal line and on the sides; the throat, under surface of the body, insides of legs, and feet are black.

The tail is irregularly banded with dark brown and dull white, the tip white for about three inches.

Another Specimen.—Nose, both surfaces of the legs, and behind the ears, dark reddish-brown; whiskers black; under side of neck, and a line on the belly, liver brown. Fur on the back very fine, and dark ashy-gray from the roots; the longer hairs at the back are black at the roots, and are broadly tipped with white; fur on the sides, cinereous at the roots, and yellowish-white from thence to the end.

There is a reddish tinge on the neck, extending to the shoulders; sides of the face grizzly-brown; the hair on the tail is irregularly clouded with brown and dull white, and is lightest on the under surface.

This animal was first noticed, by Lewis and Clarke, as the large red fox of the plains, (vol. 2, p. 168,) and was referred to by us in the first volume of the Quadrupeds of North America, p. 54, where we described it from a hunter's skin.

Having obtained a beautiful specimen from Captain Rhett, of the United States Army, we now propose for it the name of *Vulpes Utah*, as it is, so far as our information extends, chiefly found in the Utah territory, although it probably ranges considerably north of the Great Salt Lake.

The habits of this beautiful fox are similar to those of the Red Fox, and it runs into many varieties of color.

Captain Rhett informed us that he killed the specimen, kindly presented to us by him, near Fort Larimee.

Several specimens of *Vulpes Utah* have been received at the Smithsonian Institution, and it will probably soon be well known.

The chlorides were weighed together, dissolved in water, and on the addition of bichloride of platinum evaporated to dryness, and the remaining double salt of bichloride of platinum and potassium extracted by alcohol. This salt was heated to redness (as its quantity was very small,) and the platinum separated by water from the chloride of potassium. From the quantity of platinum, that of potash and chloride of potassium was calculated, and the latter substracted from the whole amount of alkali-metals. The difference is the weight of chloride of sodium and lithium, but their quantity is too small for a correct analysis. From reactions it was supposed that the mineral contained about equal proportions of those. Fluorine and phosphoric or boracic acid could not be detected.

ELECTION.

Mr. James L. Claghorn, of Philadelphia, Mr. George M. Keim, of Reading, Pennsylvania, and Dr. G. Bischoff, of the same place, were elected *Members;* and

Dr. Henry G. Dalton, of Demerara, was elected a *Correspondent.*

August 3d.

Vice-President BRIDGES in the Chair.

A communication from Prof. S. F. Baird was read, stating that the *Vulpes Utah*, of Audubon and Bachman, described in the last No. of the Proceedings (for May and June) is identical with the *V. macrourus*, Baird, described in Capt. Stansbury's Report of the Exploration of Utah. As this Report was published early in June, the writer claims priority of date for the latter name.

Dr. LeConte read a paper intended for publication in the Proceedings, entitled "Remarks on the Coccinellidæ of the United States," which was referred to Dr. Watson, Dr. Hallowell and Mr. Kilvington.

Dr. LeConte read a second communication, also intended for publication, entitled "Description of a new species of Trombidium." Referred to the same Committee.

August 10th.

Vice-President BRIDGES in the Chair.

A letter was read from Dr. J. P. Heister, for Dr. Bischoff, of Reading, Pennsylvania, dated August 5th, 1852, acknowledging the receipt of the notice of election of the latter as a member of the Academy.

A circular was received from Mr. Francis S. Holmes, Curator of the Museum of Natural History in the College of Charleston, dated July, 1852, giving an account of the establishment of the Museum, and requesting the transmission of duplicate specimens in exchange, and the publications of the Academy; and also offering to present a specimen of a recent Crinoid from the coast of South Carolina.

The communication was referred, on motion, to the Curators.

A letter was read from the Secretary of the Linnean Society of London, dated June 23d, 1852, acknowledging the receipt of the last No.

of the Journal, of late Nos. of the Proceedings, and of previous Nos. of the same, deficient in the series of that Society.

August 24th.

Prof. HALDEMAN in the Chair.

Letters were read

From Lieut. W. S. Boyd, U. S. Marine Corps, dated Valparaiso, June 27th, 1852, referring to a collection of shells now offered for sale by Mr. Weld, Purser U. S. N.

From Prof. Ehrlich, dated Linez, April 8, 1852, presenting the works announced this evening.

From M. Laporte, Sr., dated Bordeaux, May 4, 1852, in reference to an exchange of foreign insects for those of this country.

August 31st.

MR. ORD, President in the Chair.

The Committee on the following paper by Prof. Baird and Mr. Chas. Girard, reported in favor of publication in the Proceedings.

Characteristics of some New Reptiles in the Museum of the Smithsonian Institution.

By SPENCER F. BAIRD and CHARLES GIRARD.

SECOND PART,

Containing the species of the Saurian order, collected by John H. Clark, under Col. J. D. Graham, head of the Scientific Corps U. S. and Mexican Boundary Commission, and a few others from the same or adjoining territories, obtained from other sources, and mentioned under their special headings.

HOLBROOKIA TEXANA, B. and G.—*Cophosaurus texanus*, Trosch. Arch. für Naturg. for 1850, (published in 1852.) 389. Tab. VI.

This species, easily distinguished from *H. maculata*, attains a larger size and is provided with a more elongated tail. The body above and the lower surface of the head are grayish, maculated with small yellowish white subcircular dots; on the upper surface of the tail and hind legs there are transverse bands of black. On the posterior half of the abdomen there are two black crescents, the convexity of which is posterior, and extending from near the back to the belly, without coming into contact either above or below. The space between the crescents, as well as an anterior and posterior area, are yellowish white on the back and blue on the belly. The breast, the medial line of the belly, the inferior surface of thighs and tail, are unicolor, of a uniform yellowish white; the tail underneath presents seven or more large subquadrangular or subcircular black patches. In the female, the abdominal crescents are represented by two lateral spots.

Localities.—Along the Rio San Pedro, a tributary of the Bio Grande del Norte.

HOLBROOKIA AFFINIS, B. and G.—This species comes nearest to *H. texana*, from which however it can be readily distinguished by its more slender form and its proportionally larger dorsal scales and superciliary plates. The coloration differs but little from the former in the female, to which sex the only specimen in our possession belongs. The back, however, is darker, scattered with black spots, of which two dorsal rows may be followed from the occupit to the base of the tail, where they meet and constitute a crescent or an angle, the convexity of which is directed backwards. The tail underneath is provided with black patches similar to those in *H. texana*.

Locality.—Found with the preceding species.

HOLBROOKIA PROPINQUA, B. and G.—This species, very closely allied to *H. maculata*, is most readily distinguished by a more slender form of body and a more elongated tail. Another character is found in the possession of a more depressed and protruding snout. On the sides of the abdomen there are sometimes two, but generally three, black patches, whilst in *H. maculata* these conditions are reversed.

Localities.—Between Indianola and San Antonio (Texas.) We possess one individual of the same species, collected by R. H. Kern, Esq., in a more southwesterly locality.

HOLBROOKIA MACULATA, G.—Specimens of this species were obtained on the boundary line between San Antonio (Texas) and El Paso del Norte, thus extending greatly its geographical range.

CROTAPHYTUS GAMBELII, B. and G.—Of the size, shape and general appearance of *C. Wislizenii*, from which, however, it can be readily distinguished by the larger scales both on the back and belly. The head is likewise more ovoidal; at any rate the plates which cover its surface are larger, especially on the occipital region. The scales on the sides of the head are larger than in *C. Wislizenii*, especially those of the temporal region. The general distribution of color is the same as in *C. Wislizenii;* the only difference consists in the absence of the small yellowish white dots spread all over the body of the latter species. The transverse yellowish markings appear also to be more conspicuous.

Locality.—Not precisely known; collected by the late Dr. Wm. Gambel during his last visit to California. Specimens also in the Academy of Natural Sciences.

CROTAPHYTUS DORSALIS, B. and G.—A small and very characteristic species. The snout is short, truncated or rather rounded, giving to the head a much greater resemblance to that of *C. collaris* than to that of either *C. Wislizenii* or *C. Gambelii.* The scales are proportionally larger than in any of the known species of the genus. Along the dorsal line, a row of still larger and carinated scales, constitutes another very distinctive mark between this species and the others, its congeners. The tail seems rather compressed and is one and a half times the length of the body. The ground color above is bluish brown with crowded yellowish-white subcircular spots. The tail is alternately semi-annulated with bluish-brown and yellowish-white. The lower part of the body is unicolor, except under the head, where there are several narrow and oblique bluish streaks.

Locality.—Desert of Colorado, California. Collected by Dr. John L. LeConte. This species, according to the notes of Dr. LeConte, in running, carries its body very high above the ground, with the tail frequently elevated over the back, somewhat like a squirrel. It runs with very great swiftness, over the sand, making for its hole whenever pursued.

UTA ORNATA, B. and G.—This species may be distinguished from *U. Stansburiana*, of which it has the general appearance, by a dorsal space covered with five or six rows of scales larger than those on the sides of the body. Along the middle of the sides there exists one row of small scutellæ imitating the lateral line in fishes. The ground color is reddish-brown with transversely elongated black patches all along the upper part of the body and tail. The belly is unicolor in the female, whilst it is blue in the male.

Localities.—On the Rio San Pedro (Texas) and provinces of Sonora. Specimens of the same species were collected by Dr. John L. LeConte at San Diego (Cal.) and San Francisco (Cal.)

SCELOPORUS POINSETTII, B. and G.—*Sc. torquatus* var B. Wiegm.?—This species, although more intimately related to *Sc. torquatus* than to any other of the same genus, is nevertheless easily distinguishable from the latter by the form and structure of the scales on the middle region of the back, which are subcircu-

July 27th.

Vice-President Bridges in the Chair.

The Committee to which was referred Dr. Wetherill's paper on the Phœnixville Molybdate of Lead, reported in favor of publication in the Proceedings.

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In the Proceedings for the 30th March of this year, is a description of a red variety of Molybdate of Lead, examined qualitatively by me, and in which it is stated that I could not detect chromium ether by the moist way, or before the blow pipe. In the July number of Silliman's Journal, page 105, among the mineralogical notices by Mr. W. T. Blake, he observes that the specimens from the Wheatley mine, which he mistook for chromate of lead, have been found to be the molybdate containing chromic acid. I find also in Dana's Mineralogy, under the head of this mineral, the observation that "a red variety contains a few per cent. of chromic acid." In my former analysis I looked particularly for this acid without finding it. Supposing that Mr. Blake had been more fortunate than myself, I repeated the examination on larger quantities of mineral, and with great care, but have no reason to change what was before written. About one decigramme of the pulverized molybdate was dissolved in boiling concentrated hydrochloric acid. No chlorine could be detected, as would have been the case were chromic acid present. After boiling for some time to reduce the hypothetical acid to sesquioxide of chromium, enough water was added to dissolve the formed chloride of lead, and then sulphuric acid in excess. The solution was yellow, and when drops of the liquid had reached the hot sides of the capsule the blue molybdenum compound was formed, which gave with the yellow solution a green tinge to those parts. The lead being thus separated in combination with sulphuric acid, to the filtrate was added hydrosulphuret of ammonium, which kept in solution the sulphuret of molybdenum thus formed, and precipitated sulphuret of iron, which should contain sesquioxide of chromium, if chromic acid were in the mineral. This sulphuret of iron was removed from the solution, oxidized by nitric acid, precipitated hot by ammonia, then washed, and the ashes of the filter fused with nitre and carbonate of soda. The result was the slighest shade greenish, as if from the presence of minute traces of manganese, but not in the least yellow, nor did it give a yellow solution with water, nor did the solution, neutralized exactly by ammonia and nitric acid, give, as would be the case with chromic acid, the purple red precipitate of the chromate of silver on addition of the nitrate. The reactions of chromium are so decided that the presence of this metal could hardly escape the notice of one looking for it. I have not yet been able to obtain a sufficient quantity of the mineral for a quantitative examination. This compound may possibly be an acid molybdate, analogous to many chromates which when neutral are yellow, and red when acid.

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Genus CNEMIDOPHORUS.

A. With eight rows of abdominal scales.

CNEMIDOPHORUS MARMORATUS, B. and G.—This species is so closely allied to *Cn. tigris* figured in Stansbury's Report on the great Salt Lake, that at first sight, it is difficult to perceive the differences. These consist in the proportional size of the scales, which are smaller on the back and larger on the tail and belly in *Cn. marmoratus* than in *Cn. tigris*. The head is broader on the vertex in *Cn. marmoratus* than in *Cn. tigris*. Differences in the shape of the cephalic plates are likewise obvious when the two species are compared. The hind legs are more developed in *Cn. marmoratus* than in *Cn. tigris*, the scales which cover their under surface are larger and extend over a greater area. The ground color is yellowish green, marbled with black, except on the head and posterior part of the tail.

Locality.—Between San Antonia (Texas) and El Paso del Norte.

CNEMIDOPHORUS GRAHAMII, B. and G.—This is a large and beautiful species, strongly suggestive of *Cn. tigris*, from which it differs by a much smaller and narrower head, and by some differences in the proportional size of the cephalic plates. The scales on the upper region of the body are still more minute than in *Cn. marmoratus*. Those on the margin of the subgular fold are much larger than in either *Cn. tigris* and *Cn. marmoratus*. The head is olivaceous; the ground color of the body reddish-green, with seven or eight longitudinal series of subquadrangular black dots, constituting sometimes continuous bands. This species is dedicated to the accomplished officer to whom the U. S. and Mexican boundary survey was, for a short time, entrusted. His name has long been associated with the progress of science in the United States, from the date of the first expedition of Major Long, to the present time, and we take great pleasure in tendering this especial mark of respect.

Locality.—Found with the preceding species.

CNEMIDOPHORUS GULARIS, B. and G.—Allied to *Cn. sexlineatus*, of which it has the general appearance. The body, however, is shorter, the fore and hind legs are more developed, and the scales on the upper region of the body smaller than in the latter species. Another very striking difference is to be found on the subgular fold, where the marginal scales are considerably larger than in *Cn. sexlineatus*.

Localities.—From Indianola, (Texas,) and the valley of the Rio San Pedro, a tributary of the Rio Grande del Norte.

CNEMIDOPHORUS PERPLEXUS, B. and G.—This species has the general appearance of *Cn. Grahamii*, having like the latter a proportionally small and narrow head, which distinguishes at once these from both *Cn. tigris* and *Cn. marmoratus*. From *Cn. Grahamii* it differs by the absence of large scales on the margin of the subgular fold. The scales on the upper part of the body are nearly the same, but those on the belly are larger in *Cn. perplexus* than in *Cn. Grahamii*. The ground color is yellowish green, with seven yellowish stripes extending from the occiput to the origin of the tail.

Localities.—Valley of the Rio San Pedro of the Rio Grande del Norte. Specimens were also collected by Gen. Churchill, on the Rio Grande west of San Antonia, (Texas,) and by Dr. William Gambel on his last journey to California.

CNEMIDOPHORUS GRACILIS, B. and G.—This species comes nearer to *Cn. perplexus* than to any other of the same genus, but the head is still narrower, the body, tail, and legs slender, and proportionally more elongated. The scales on the lower surface of the head and throat are much smaller than in *Cn. perplexus*. The color is bluish black above, with four yellowish white narrow stripes extending from the occiput to the origin of the tail.

Locality.—Desert of Colorado; collected by Dr. John L. Le Conte.

B. With ten rows of abdominal scales.

CNEMIDOPHORUS PRAESIGNIS, B. and G.—Ten longitudinal rows of abdominal scales, quadrangular, broader than long. Two subguttural folds, the surface of the posterior one covered with scales of medium size. A transverse band of similar scales extends from one ear opening to the other. Nostrils between the suture of two plates. Scales on the upper part of the body proportionally small: on the tail, elongated, narrow and keeled. The middle region of the back is greenish brown, exhibiting an indistinct medial streak with irregular quadrangles of the same color on each side, separated by a narrow band of deep black. The sides are black, provided with two narrow stripes of yellowish white on each and extending along the tail. Between these stripes, and specially along the abdomen, irregular dots of the color of the stripes are seen scattered. The hind legs and tail are variegated with black and bluish spots.

Locality.—From Chagres, collected by Prof. C. B. Adams. Said to be also common at Panama.

PLESTIODON OBSOLETUM, B. and G.—Total length about nine inches. Body and limbs rather short and stout; tail longer than the body, conical, and rapidly tapering away. Parieto-occipital and vertical the largest of all the cephalic plates; rostral, labials, and temporal ones considerably developed. General color greenish white; uniform below; the scales on the back and sides are thinly marginated with black.

Locality.—Valley of the Rio San Pedro of the Rio Grande del Norte.

ELGARIA NOBILIS, B. and G.—This is the most beautiful species of the genus. The body and tail are slender and elongated; the limbs slender and rather short. The ventral shields are twelve rowed; fourteen longitudinal rows of scales on the back, obscurely keeled. The ground color is olivaceous; the upper surface of the head, the belly and lower surface of the tail, are dotted with black. From the occiput to the origin of the tail, there are nine or ten transverse blackish brown bands on the back, covering two or three rows of scales, margined posteriorly with white. The intermediate spaces between these brown bands are of the same width as the bands themselves. Upwards of twenty brown half-rings are observed on the tail, the width of which is a little less than the intermediate spaces.

Locality.—Fort Webster, Copper mines of the Gila, (Santa Rita del Cobre,) New Mexico.

The Committee to which was referred Dr. Le Conte's remarks on the Coccinellidæ of the United States, and also on his description of a new species of Trombidium, reported in favor of publication.

Remarks upon the COCCINELLIDÆ *of the United States.*

By JOHN L. LE CONTE, M. D.

It is not my intention on this occasion to present a synopsis or catalogue of the native species belonging to the present group. The very elaborate and carefully written work of Mulsant* renders such a labor entirely superfluous. I propose now merely to present some views on the classification of the genera of this family, and to add descriptions of the new species which have recently been obtained.

On account of the difficulty of distinguishing the species of Scymnus, I have made new descriptions of all the species observed; the Corylophi, with but a single exception, are new, and I have, therefore, by adding a new description of that species, completed a monograph of that division of the present family.

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*Species des Coléoptéres Triméres Sécuripalpes. Lyon, 1850.

Although the labors of Mulsant have served to establish many natural gro
among the species of this difficult tribe, I can by no means agree with him
garding the generic value of such groups. However constant may be the ch
acters used by him, yet they are entirely too unimportant to be used for se
rating species, otherwise closely allied. A genus to be natural must differ fr
its neighbors by some decided modification of structure, accompanied with a
cognizable difference in external form: and although it may be convenient to g
names to subordinate groups, yet they can in no case be admitted as genera.

For this reason, I find it impossible to adopt Mulsant's numerous genera, a
therefore present the following table as showing the relations between such
our native genera, as appear to be really separated by trenchant and recogniza
characters.

Div. I. COCCINELLÆ.

Antennæ articulo 1^{mo} crasso, 2^{ndo} brevi rotundato; tarsi semper dilata
articulo 3^{tio} minuto recepto: palpi maxillares securiformes; alarum mar
simplex.

A. Mandibulæ simplices vel, bifidæ.
1. Antennæ longiusculæ basi liberæ.
a. Metasterno non diviso, epimeris maiusculis: (corpus oblongum.)
Ungues simplices, tenues . . . . Anisosticta Chevr.
Ungues dentati . . . . Hippodamia Chevr.
b. Metasterno diviso, epimeris minoribus: (corpus præcipue rotundatum, ungues semper dentati.)
Antennæ clava lata truncata . . . . . . Coccinella Lin.
Antennæ clava lata apice rotundata . . . . . Psyllobora Chevr.
Antennæ clava elongata: (corpus rotundatum glabrum) Myzia Muls.
Antennæ clava elongata, apice emarginata: (corpus oblongum pubescens) . . . . Coccidula Kug.
2. Antennæ breves, basi obtectæ.
Labrum occultum . . . . Chilocorus Leach.
Labrum conspicuum . . . . Exochomus Redt.
3. Antennæ brevissimæ, basi liberæ.
a. Prosternum antice non lobatum.
Corpus glabrum, pedes antici dentati . . . . Brachiacantha Chev.
Corpus glabrum, pedes mutici, ungues dentati . . Hyperaspis Chevr.
Corpus glabrum, pedes mutici, ungues simplices . Oxynychus Lec.
Corpus pubescens, ungues dentati . . . . . Scymnus Kug.
b. Prosternum antice lobatum, os obtegens . Œneis Muls.
B. Mandibulæ multidentatæ . . . . . . Epilachna Chevr.

Anisosticta Chevr.

1. A. seriata Lec. *Cocc. siriata* Mels. Proc. Ac. Nat. Sc. 3, 177. *Næmia litigiosa* Muls. 31.
The genus Næmia does not seem sufficiently distinct.

Hippodamia Chevr.

This genus may be divided into two groups:
α. Ungues omnes acute dentati. (*Hippodamia* and *Adonia* Muls.)
β. Ungues omnes obtuse dentati. ((*Megilla* Muls.)
The following species, except (5,) belong to division (α.)

1. H. convergens Guérin: Muls. *Cocc. modesta* Mels. Proc. Ac. Nat. Sc. 3, 178.

2. H. Mulsanti, nigra, thorace subconvexo, antrorsum angustato, subtilissime punctulato, margine laterali et apicali albo, elytris rufo-flavis, fascia subbasali, macula magna obliqua pone medium, alteraque versus apicem nigris. Long. ·22.

One specimen, Pic River, Lake Superior. Very similar to H. 5-signata (Muls.) but differs by its convex and less punctured thorax being narrowed in front, and margined with white on the sides and apex. The large posterior spot of the elytra is more oblique, and is a little narrower at its external part: the epimera are white.

In the only specimen of H. 5-signata in my collection, the thorax, besides the large white blothes at the anterior angles, has two small white dorsal spots, and one at the middle of the apex.

3. H. ambigua, nigra, thorace punctulato, margine laterali et antico, maculisque dorsalibus duabus plus minusve albis, elytris valde punctulatis rufis, ad basin albidis, sutura basi nigra. Long. ·2—·27.

California and Oregon. Very similar to H. convergens, but easily distinguished by the strongly punctulate elytra: the elytra are usually without spots, sometimes there is a single black dot on each at the anterior fifth near the suture. The thorax varies as follows:

α. Lateral and apical margin narrow, white; dorsal spots small, distinct.

β. Lateral margin white, dilated at the anterior angles; dorsal spots none.

4. H. punctulata, nigra, thorace valde punctulato, maculis duabus dorsalibus, alteris ad angulos anticos, margineque apicali medio prolongato albis, elytris punctulatis, rufis basi pallidis, sutura antice nigra. Long ·27.

Several specimens, San Francisco, California. Very similar to the preceding, but the thorax is more strongly punctured and more convex; the white of the sides extends only half way to the base, and the apical white margin, even when not entire, is prolonged a little in the middle; the dorsal spots are sometimes wanting; the posterior angles are sometimes marked with a small white point.

This species and the preceding have been confounded with unspotted varieties of H. convergens, from which their strongly punctulate elytra at once distinguish them.

5. H. maculata Lec.; *Cocc. maculata* De Greer; *C. 10-maculata* Fabr.; *C. oblonga* Oliv.; *Megilla maculata* Muls. 28. This species is common in the southern part of California. One specimen from New York is more strongly punctured on the elytra than any other I have seen, but I can find no other difference.

COCCINELLA Linné.

Our species fall into three natural divisions according to the form of the enclosed spaces of the first abdominal segment, behind the coxæ. I have latinised Mulsant's "plaques abdominales" into "scuta abdominis;" Redtenbacher's "Schenkellinie" is more appropriate, but is not so easily translated.

α. Scuta abdominis margine arcuato, (*Adalia* Muls.)
β. Scuta abdominis margine angulato, (*Harmonia* and *Coccinella* Muls.)
γ. Scuta abdominis margine externo obliterato, (*Daulis* Muls.)

1. C. venusta Mels. Proc. Acad. Nat. Sci. 3, 178 (1847.)
Harmonia notulata Muls. 83 (1850.)

2. C. picta Randall, Bost. Jour. Nat. Hist. 2, 51.
C. concinnata Mels. Proc. Acad. Nat. Sci. 3, 178.
Harmonia contexta Muls. 87.
Harmonia picta Muls. 1017.

3. C. lacustris, hemispherica, nigra, dense punctulata, thorace macula alba utrinque ad angulos anticos, elytris rufo-flavis, macula scutellari obcordata, duabusque utrinque transversis nigris, lateribus pone humeros late sulcatis, epimeris mesothoracis albis. Long ·27.

Lake Superior, several specimens. This species very closely resembles C.

monticola (Muls. 115), but the elytra have the lateral margin from the humeri to the middle broadly sulcate, while in C. monticola the same part is scarcely perceptibly concave; the black transverse spots of the elytra are also larger. Otherwise there is no special difference.

Mysia Muls.

This genus differs from Coccinella by its long and slender antennæ; I have included in it also Mulsant's genus Anatis, as I can find no difference worthy of note. The following is new:

1. M. Rathvoni, late ovata, utrinque fortius angustata, thorace lateribus rectis, maculis duabus baseos lateribusque late albis, his puncto nigro notatis, elytris piceo-rufis, lateribus usque ad medium explanatis. Long. ·4.

I take great pleasure in dedicating this fine species to Mr. S. S. Rathvon, of Lancaster, Pa., to whom science is indebted for many valuable additions to our entomological fauna. It was found at Sacramento, California, by Mr. Childs. Broadly oval, very convex, strongly narrowed before and behind, so as to be almost angulated at the middle, on the sides. Head black, with an obscure rufous spot each side. Thorax twice as wide as long, strongly narrowed in front, sides nearly straight, broadly margined; black, with two basal and a very broad lateral margin white; the sides have a marginal black spot near the posterior angles. Elytra piceo-rufous, with some very indistinct black dots, of which the posterior series consisting as in M. 15-punctata of 6 spots is most distinct; the lateral margin from the base to the point of greatest breadth is strongly flattened and concave, and is blackish towards the middle. Beneath black.

This is evidently a very dark colored specimen, and it is probable that on further exploration varieties will be found similar to the light colored and ocellate specimens of M. 15-punctata.

Coccidula Kug.

1 C. lepida, elongato-oblonga, flava, subtiliter albo-pubescente, capite pectoreque nigris, elytris disperse punctatis, basi, lateribus ad medium, maculaque communi pone medium nigerrimis. Long. ·11.

One specimen, Vermont. Prof. C. B. Adams. Oblong elongate, convex, bright yellow, covered with fine short white hair. Head black, finely and not densely punctured, clypeus, mouth and antennæ yellow. Thorax finely punctured, rounded on the sides, base rounded, posterior angles subobtuse, not rounded. Elytra tolerably coarsely punctured, base and sides as far as the middle black; black portion broader at the scutellum and at the middle of the side; disc with a common rounded black spot at the second third; beneath yellow; breast entire black; prosternum black posteriorly.

The anterior coxæ in this genus are much smaller than in any other of the present tribe, and almost round.

Exochomus Redt.

1. E. Guexi, hemisphericus, thorace nigro lateribus antice rufis, basi subangulato immarginato, elytris obsolete punctulatis, rufis macula magna subapicali nigri. Long. ·12.

Louisiana. I have dedicated this species to my estimable friend Mr. J. A. Guex, to whom I owe my specimens of this and many other interesting species. Size and form of E. marginipennis (Muls.) *E. prætextatus* Mels. Pr. Ac. 3, 178: *Cocc. marginipennis* Lec. An. Lyc. 1, 173.) Head black in the female, yellow in the male. Thorax very obsoletely punctulate, black; sides broadly rufous in the male, rufous only at the anterior angles in the female; base very much rounded, somewhat angulated, not margined. Elytra very finely and obsoletely punctulate, rufous with a large black spot near the apex and a little nearer to the suture than the side. Beneath piceous; sides and feet yellow.

Brachiacantha Chevr.

1. B. albifrons. *Coccinella albifrons* Say, Journ. Acad. Nat. Sci. 4, 94; Muls. 1049.

Missouri Territory and Louisiana. In the male the anterior part of the thorax is white, a little prolonged in three places, so that the outline of the black part is four-lobed.

2. B. 10-pustulata. *Hyperaspis 10-pustulata* Mels. Pr. Ac. Nat. Sc. 3, 179. This is commonly considered as the small variety of B. ursina, but it differs essentially in having the elytra much more strongly punctured.

3. B. basalis Mels. Pr. Ac. Nat. Sc. 3, 179; *B. confusa* Muls. 537.

4. B. quadripunctata Mels. ibid. 3, 178; *B. diversa* Muls. 538.

Hyperaspis Chevr.

1. H. militaris, ovalis, convexa, subtiliter punctulata, capite thoraceque nigris, hoc lateribus albis, elytris flavis, sutura maculaque humerali nigris; pedibus abdominisque lateribus testaceis. Long. ·1.

One specimen, Columbia, S. Carolina. Rounded, slightly oval, very convex and very finely punctulate. Head black, mouth and organs testaceous. Thorax with the base much rounded, and very finely margined; black, sides whitish-yellow. Elytra pale yellow with a broad sutural vitta and an oblong spot on the humeral callus black. Beneath piceous, black; feet, sides and apex of the abdomen testaceous.

2. H. vittigera, ovalis, modice convexa, thorace nigro lateribus flavis, elytris rugose punctulatis, albicantibus sutura vittaque lata postice adnexa nigris, pedibus testaceis. Long. ·08.

Missouri Territory. Oval, somewhat oblong, moderately convex. Head sparsely and obsoletely punctulate, testaceous in the male, black with yellow mouth in the female. Thorax obsoletely punctulate, rounded and finely margined at the base; in the male yellow with a large basal black spot, anteriorly lobed and extending beyond the middle; in the female black with narrow yellow sides. Elytra finely punctulate and wrinkled; whitish, with a broad black vitta commencing near the base, and extending nearly to the apex, where it curves inwards and joins the suture, which is also black; margin behind the middle and at the apex black. Beneath piceous, margin of the abdomen and feet obscure testaceous.

3. H. arcuata, ovalis, modice convexa, nigra, capite thoraceque lateribus maculaque apicali 3-dentata albis, elytris subtiliter punctatis, basi margineque usque ad medium tenuiter albis, pedibus testaceis. Long. .07.

One male found at the mouth of the Gila, California. Oval, slightly oblong, moderately convex. Head obsoletely punctured, base rounded, scarcely margined, black; sides yellowish-white; apex with a transverse yellow spot, posteriorly 3-dentate, at the sides almost reaching the yellow margin. Elytra distinctly punctured, black, with a narrow arcuated white line extending from near the scutellum, along the base of the outer margin as far as the middle. Beneath piceous, feet dark testaceous.

4. H. annexa, rotundato-ovalis, convexa, nigra, thorace lateribus albis, elytris, obsolete punctulatis, vitta suturali lata, alteraque postice abbreviata, ad basin extensa, margineque tenui nigris. Long. ·10.

One pair. San Francisco. Rounded oval, less convex than H. militaris. Head scarcely punctulate, in the male yellow, in the female black. Thorax scarcely punctulate, black, lateral margin yellow. Elytra very indistinctly punctulate, yellow, with a sutural vitta broader in front, and another very broad vitta commencing at the base and extending to within one-seventh of the apex, deep black; outer margin and apex with a very narrow black line. Beneath blackish piceous, tarsi paler; anterior legs, tibiæ and tarsi of the male testaceous.

In the female the black vittæ are much broader, so that the elytra appear black, with a narrow marginal vitta and another suboblique discoidal one united posteriorly to the marginal vitta.

5. H. quadrivittata, rotundato-ovalis, modice convexa, nigra, valde

punctulata, thorace lateribus flavis, elytris margine externo et apicali, vittaque obliqua utrinque abbreviata flavis. Long. ·10.

One specimen found near Long's Peak. Similar to the female of the preceding, but is strongly punctulate, and the discoidal yellow vitta does not unite with the marginal one. The organs of the mouth and the feet are piceous.

6. H. **consimilis**, hemispherica, punctulata, nigra, thorace margine laterali pallido, elytris gutta subbasali, vitta abbreviata postica, margineque externo subundulato flavis, tibiis anticis testaceis. Long. ·10.

One specimen (female,) Lake Superior. Very similar to H. disconotata (Muls.) but the anterior spot does not reach the base, the posterior spot is vittiform, extending from the middle to within one-seventh of the apex; the outer margin is much narrower and but slightly undulated, posteriorly it separates from the margin, leaving the apex black. The feet are black, the anterior tibiæ and extremity of the middle tibiæ yellow.

7. H. **elegans** Muls. 658; *Cocc. undulata*|| Say, Jour. Ac. Nat. Sc. 4, 92.

Coccinella lugubris (Randall, Bost. Journ. Nat. Hist. 2, 52), is probably a variety of this species; the types of Randall's species are, however, long ago destroyed.

8. H. **fimbriolata** Mels. Proc. Ac. Nat. Sc. 3, 180; *H. rufomarginata* Muls. 661.

9. H. **iucunda**, hemispherica, obsolete punctulata, capite thoraceque rufis, hoc basi medio nigro, lateribus flavis, elytris nigris maculis utrinque duabus margineque externo postice abbreviato flavis, corpore pedibusque rufis. Long. ·12.

One specimen, Illinois, Mr. Willcox. Almost hemispherical, finely and almost obsoletely punctulate. Head yellowish rufous, thorax rufous, sides broadly yellow, base rounded, very finely margined, black as far as the yellow of the sides. Elytra black, with a large round yellow spot before the middle and another slightly reniform one towards the apex; lateral margin yellow, from the base for two-thirds the length, a little expanded behind. Pygidium rufous. Body beneath and feet rufous.

10. H. **tænlata**, nigra, hemispherica, nitidissima, subtiliter punctulata, elytris margine laterali antice, maculaque magna triangulari ad marginem extensa rubris. Long. ·10.

One specimen, San Diego, California. Almost hemispherical, black, finely but not densely punctulate, very shining. Head and thorax entirely black, punctures of the latter very distinct. Elytra with a large triangular blotch at the middle, extending two-thirds the breadth of the elytra, to the margin, where it is expanded so as to reach the base; the posterior outline is a little emarginate towards its inner part, which is near about the centre of the elytron. Body beneath entirely black.

11. H. **pratensis**, subhemispherica, nigra, valde punctulata, thorace lateribus late albis, elytris utrinque trimaculatus, maculis duabus anticis transversim positis, tertia subapicali rufo-flavis, pedibus flavis. Long. ·15.

One specimen, Missouri Territory. The maculation of this species is very similar to that of some species of Brachiacantha dentipes. Almost hemispherical black, very distinctly punctulate; mouth yellow; thorax with a large yellowish-white spot occupying the whole of the side; base less rounded than usual, subtruncate at the middle. Elytra with a large orange-colored spot before the middle, closer to the suture than to the side; another smaller marginal one opposite the posterior part of the discoidal spot, and a third towards the apex, equidistant between the sides and suture. Beneath shining black, legs yellow.

12. H. **signata**, Muls. 683; *Cocc. signata* Oliv. Ent. 92, 7, 107.

H. leucopsis Mels. Pr. Ac. Nat. Sc. 3, 179 (specimen masculinum.)

13. **H. bigeminata** Lec.; *Cocc. bigeminata* Rand. Bost. Journ. 2, 32.
H. Guexi Muls. 687.

I have compared my specimens with Randall's type, the only one remaining in his collection at the time I examined it. My specimens agree perfectly with Mulsant's description of H. Guexi.

Œneis Muls.

1. **Œ. puncticollis**, breviter, ovata, glabra, nigra nitida, thorace parce punctato, lateribus subrotundatis, elytris impunctatis. Long. ·07.

Southern States. Broadly oval, convex, shining black. Head sparsely punctured black, with yellow palpi. Thorax very short, marked with a few distinct punctures, base rounded, finely margined, sides rounded, posterior angles slightly rounded. Feet black.

2. **Œ. pusilla**, breviter ovata, glabra, nigra, nitida, capite thoraceque lateribus flavis, hoc parce punctulato, elytris impunctatis, pedibus flavis. Long. ·06.

Georgia and Missouri Territory. Very similar to the preceding, but besides the differences in color the thorax is less distinctly punctured, and the posterior angles are more rounded. A specimen from New York has the head and thorax entirely black, but the feet are yellow. It is probably the female of this species.

Scymnus Kug.

The species found in the United States may be arranged in groups, as follows:

A. Abdominis laminæ extus omnino obliteratæ.	
a. Elytra maculis discoidalibus notata	Sp. 1—5.
b. Elytra macula apicali notata	Sp. 6—7.
B. Abdominis laminæ integræ vel vix imperfectæ.	
1. Abdominis laminæ extus interruptæ	Sp. 8—9.
2. Abd. lam. integræ.	
c. Elytra testacea	Sp. 10—13.
d. Elytra nigra, apice testacea	Sp. 14—21.
e. Elytra nigra immaculata	Sp. 22—27.

A.—a.

1. **S. amabilis**, ovalis, minus convexus, ater nitidus, punctatus, subtiliter pubescens, capite, thoracis lateribus, elytrorum macula obliqua, fascia postica, apice, pedibusque læte flavis. Long. ·07.

New Orleans, one specimen, Mr. Guex. Oval, less convex than usual, shining, finely and densely punctured, and very finely pubescent. Head and organs of the mouth yellow. Thorax narrowed in front, base slightly sinuous, finely margined, black, sides with a yellow margin, which is wider in front. Elytra forming a very distinct angle with the sides of the thorax, black, with a large transverse spot, a posterior band and the apex yellow: the spot is oblique and extends from just below the humerus to the middle of the elytra, ending near the suture; the band is placed at the second third of the elytra, is sinuate on each side, and at the sides and suture is confluent with the yellow apical margin, so that on each side a transverse black spot is included. Under surface black, venter testaceous at the sides and apex; feet yellow.

2. **S. ornatus**, ellipticus, convexus, ater, opacus, breviter pubescens, subtiliter punctulatus, elytris maculis magnis utrinque duabus aurantiacis. Long. ·09.
Lec. Agassiz' Lake Superior, 239.

One specimen, found on the North shore of Lake Superior. Elliptical, moderately convex, black without lustre, finely punctulate, and covered with short gray hair. Thorax narrowed in front, slightly rounded on the sides, base not sinuate, distinctly margined in the middle. Elytra with a large oblique orange colored spot before the middle, and another rounded, somewhat transverse one behind the middle extending nearly to the sides and to the suture. Under sur-

face black, tibiæ and tarsi very obscurely rufo-piceous. Abdominal plates shorter than the first segment of the abdomen.

S. (Diomus) myrmidon Muls. 954, seems to be allied to this species, but the yellow feet, testaceous apex of the elytra, and shorter abdominal plates, at once distinguish it.

3. S. guttulatus, rotundatus, convexus, niger nitidus, punctulatus, pubescens, elytris gutta parva utrinque ad medium, alterisque duabus pone medium rufis. Long. ·08.

Two specimens, San Francisco, California. Slightly oval rounded, and convex, black, finely punctulate, tolerably densely pubescent. Thorax somewhat narrowed in front, very slightly rounded on the sides, not margined at the base, which is scarcely sinuate. Elytra more distinctly punctured than the thorax, marked with a small round red spot at the middle about the internal third of the breadth, and two others placed transversely about two sevenths from the apex, of which the exterior is the larger and slightly oblique. Under surface entirely black. Abdominal plates a little shorter than the first joint of the abdomen.

4. S. flavifrons, rotundatus, convexus, niger, punctatus, breviter pubescens, elytris macula utrinque pone medium, ore tibiis tarsisque flavis. Long. ·08.

Melsheimer, Pr. Acad, Nat. Sc. 3, 181.

New York and Pennsylvania, rare. Rounded, convex, black shining, distinctly punctured, covered with fine gray hair; mouth and its organs yellow. Thorax narrowed in front, scarcely rounded on the sides, finely margined at the base, which is truncate in front of the scutellum, and obliquely sinuous each side. Elytra with a large round yellow spot at the posterior third, and equidistant from the side and suture. Body beneath entirely black, tibiæ and tarsi yellow. Abdominal plates shorter than the first segment; their posterior margin is parallel with the margin of the segment, and reaches the side as in the preceding species.

5. S. bioculatus, rotundato-ovalis convexus, niger punctatus, cinereo-pubescens, elytrorum gutta pone medium, tibiis tarsisque flavis. Long. ·07.

Muls. 960.

Georgia, rare. This species exactly resembles the last, but it is smaller and more oval, the elytra being a little narrowed behind, and not so regularly rounded on the sides, as in S. flavifrons. The punctures of the elytra are somewhat larger. In one specimen the head is testaceous, in the other it is black, but both are females.

A.—b.

6. S. terminatus, subrotundatus, convexus, niger nitidus, punctatus, subtiliter pubescens, capite, thoracis abdominisque lateribus pedibusque testaceis, elytris apice late flavis. Long. ·075.

Say, Bost. Journ. Nat. Hist. 1, 203: Muls. 952.

Pennsylvania, Georgia. Rounded, slightly oval, convex, black and shining, covered with very fine gray hair. Head testaceous; thorax finely and closely punctured, narrowed in front, but little rounded on the sides, base rounded, finely margined, scarcely at all sinuous, sides narrowly margined with testaceous. Elytra more coarsely punctured, apex with a large yellow spot occupying about one-fifth of the length, and having its anterior boundary slightly convex. Beneath black, abdomen testaceous, black at base; feet yellowish; the abdominal plates extend to the posterior margin of the segment.

Varies with the sides of the thorax widely testaceous, and the apex narrowly margined with the same color.

Allied to this species is S. xanthaspis Muls. 952, from Florida, which is afterwards (p. 1101) considered as a variety of S. ochroderus; its yellow thorax will at once distinguish it.

7. S. femoralis, subrotundatus, convexus, niger nitidus, punctatus subtiliter pubescens, capite thoracis lateribus, elytrorum apice lata testaceis, tibiis tarsisque piceis. Long. ·075.

One specimen, New York. Very similar to the last. The thorax is a little narrower, the latter testaceous margin is very narrow; the body beneath and the thighs are entirely black, the tibiæ and tarsi piceous. The abdominal plates are as in the last, but seem to reach the posterior margin of the segment near the middle.

B.—1.

8. S. **americanus**, breviter ovatus, ater, minus dense punctatus, pubescens, capite, thoracis lateribus, abdomine, pedibus, elytrorum apice brevi testaceis. Long. ·12.

Muls. 965.

New York and Pennsylvania. A large species with short ovate black body. Above distinctly, not densely punctured, covered with coarse gray hair. Head testaceous. Thorax usually black, with testaceous sides, sometimes entirely testaceous, narrowed in front, and rounded on the sides; base margined, slightly truncate at the scutellum, scarcely sinuous each side. Elytra with a distinct testaceous apical margin. Beneath black, coarsely punctured, apex and sides of the abdomen testaceous, feet yellow. The abdominal plates reach nearly to the extremity; their margin then suddenly turns upwards and becomes obsolete.

9. S. **nebulosus**, rotundato-ovalis, convexus, confertim punctatus, subtus niger, supra testaceus, griseo-pubescens, thorace medio obscuro, elytris irregulariter parce piceo-notatis, pedibus flavo-testaceis. Long. ·09.

One specimen, found at the Colorado River, California. Body rounded oval, convex, coarsely and somewhat densely punctured, above testaceous, densely pubescent. Thorax but little narrowed in front, base truncate at the scutellum, and finely margined, oblique, but not sinuous on each side; the disc is darker each side of the medial line. Elytra forming a distinct angle with the sides of the thorax, irregularly mottled with small piceous dots. Body beneath black, coarsely punctured, anus testaceous. Abdominal plates reach nearly to the apex of the segment, their margin then turns upwards, but does not reach the base. Feet yellowish testaceous.

B.—2—c.

10. S. **pallens**, rotundato-ovalis convexus, subtus niger supra testaceus, pubescens, elytris subtilissime punctulatis, pedibus flavo-testaceis. Long. ·08.

San Francisco, on Spiræa. Rounded, slightly oval, convex, above yellow testaceous, finely densely pubescent, thorax not visibly punctured, rounded on the sides, base very finely margined, slightly rounded. Elytra very finely punctulate, and very slightly rugous. Body beneath black, finely densely punctulate, abdomen posteriorly margined with testaceous; abdominal plates entire, shorter than the first segment, laterally not extending to the parapleuræ; their margin is smooth and shining. Feet yellow.

11. S. **debilis**, rotundato-ovalis, testaceus, pubescens, elytris minus dense punctulatis, pedibus flavo-testaceis. Long. ·05.

One specimen, San Jose, California. Rounded, slightly oval, convex, above yellow testaceous finely densely pubescent. Thorax very finely punctulate, rounded on the sides, margined at the base, which is slightly rounded. Elytra finely and distinctly punctured. Body beneath darker, finely punctulate, tip of the abdomen and feet pale yellow testaceous. (Abdominal plates not examined.)

12. S. **cinctus**, rotundato-ovalis, modice convexus, punctatus, longius pubescens, niger, capite, pedibus, thorace elytrisque testaceis, illo macula basali, his vitta suturali postice angustata nigra. Long. ·09.

One specimen, New Orleans, Mr. Guex. Seems to resemble S. Lœwii and floralis *Muls.*, but differs from the first by its entirely yellow feet, and from the second by its black abdomen. Rounded, slightly oval, moderately convex, finely pubescent. Head yellow, densely punctured. Thorax narrowed in front, rounded on the sides, base margined, truncate at the scutellum, obliquely sinuous each side; punctured, more densely at the sides, yellow, with a large black spot, occupying two-thirds of the base and extending nearly to the ante-treme apical margin testaceous. Beneath black, coarsely punctured, last three joints of the abdomen yellow; abdominal plates shorter than the segment, smooth, punctured only at their base. Feet yellow.

B—2—e.

22. S. marginicollis, rotundato-ovalis, convexus, longius pubescens, niger, capite thoraceque subtilius punctulatis rufis, hoc macula basali nigra, elytris sat dense punctatis, femoribus anticis rufis. Long. ·095.

Mannerheim, Bull. Mosc. 1843, 313. Muls. Cocc. 1053.

San Francisco and San Diego, California. Rounded oval, convex, covered with longer gray hair than usual. Head and thorax finely and sparsely punctulate, rufous; the latter with a basal black spot, small in the male, large in the female, base very finely margined, scarcely sinuate. Elytra not deeply but tolerably densely punctured, entirely black. Body beneath black, densely punctured, abdominal plates a little shorter than the segment, smooth at their margin. Feet black, anterior thighs rufous.

23. S. tenebrosus, subhemisphericus, niger, pubescens, thorace subtilius punctulato, elytris minus dense punctulatis, pedibus testaceis. Long. ·095.

Muls. Cocc. 989.

Southern States, not common. Almost hemispherical, black, shining, covered with fine pubescence. Head finely punctured, testaceous in the male, black in the female; mouth testaceous. Thorax sparsely and finely punctulate, base margined, obtusely truncate at the middle, obliquely subsinuate each side. Elytra distinctly, but not densely punctured. Beneath black, coarsely punctured; abdominal plates a little shorter than the segment, posteriorly smooth. Feet testaceous.

24. S. lacustris, breviter ovalis, convexus, niger, pubescens, elytris sat dense punctatis, pedibus testaceis basi nigris. Long. ·09.

Le Conte, Agassiz' Lake Superior, 239; Muls. Cocc. 989.

Var. *S. nigrivestis*, Muls. Cocc. 990.

North Shore of Lake superior. Very similar to the preceding, but easily distinguished by the color of the feet. Oval, almost hemispherical, shining black, finely pubescent. Head finely punctured, mouth testaceous. Thorax sparsely and finely punctured, base margined, truncate in the middle, oblique each side. Elytra moderately densely punctured. Body beneath black, densely punctured, more finely upon the abdomen; abdominal plates scarcely shorter than the segment, smooth, punctured at base. Feet testaceous, femora black for two-thirds the length. The apex of the abdomen of the male is more deeply impressed than usual. Varies with the feet entirely black.

25. S. abbreviatus, breviter ovalis, convexus, niger pubescens, elytris confertim punctatis, pedibus rufo-piceis, abdominis laminis brevibus. Long. ·085.

One female, Eagle Harbor, Lake Superior. Oval, almost hemispherical, black, densely pubescent. Head finely and densely punctured. Thorax sparsely punctured on the disc, densely at the sides, base finely margined obtusely rounded in the middle. Elytra densely and coarsely punctured. Body beneath densely punctured; abdominal plates three-fifths as long as the segment, margin smooth. Feet entirely dark rufous.

26. S. nanus, rotundato-ovalis, convexus, nigro-piceus, parce pubescens, thorace parce punctulato, elytris parce minus subtiliter punctatis, pedibus rufis. Long. ·06.

Two specimens, Missouri territory. Oval rounded, convex, blackish piceous, sparsely covered with fine pubescence. Head finely punctulate, mouth rufous. Thorax finely and sparsely punctulate, anterior angles rufous; base margined, obtuse in the middle. Elytra distinctly, but not densely punctured. Body beneath punctured, abdominal plates not shorter than the segment, smooth at their margin, scarcely extending to the parapleuræ. Feet rufous. Anus of the male broadly emarginate.

27. S. punctum, rotundato-ovalis convexus niger, parce pubescens, thorace lateribus confertim punctatis, elytris subtiliter parce punctatis, pedibus testaceis, femoribus posterioribus piceis. Long. ·05.

Two specimens, North shore of Lake Superior. On account of its size and form it resembles the preceding, but the coarsely punctured thorax distinguishes it. Rounded oval, convex, shining black, covered with fine and sparse pubescence. Head obsoletely punctulate, antennæ yellow. Thorax finely and sparsely punctured at the middle, coarsely and densely at the sides, base margined, obtuse in the middle, subsinuate each side. Elytra finely and sparsely punctured. Body beneath coarsely punctured, abdominal plates smooth, punctured at base, considerably shorter than the segment, not extending laterally to the parapleuræ. Feet testaceous-yellow, four posterior thighs piceous.

The following species I have not seen:
S. ochroderus Muls. var. *xanthaspis*, Muls. 952.
S. myrmidon Muls. 954.
S. icteratus Muls. 969.
S. Brullei Muls. 954.
S. fastigiatus Muls. 986.
S. punctatus Mels. Pr. Ac. Nat. Sci. 3, 180.
S. collaris Mels. ibid., is probably one of the species in B—2—d, but the description is not sufficiently definite to permit its determination.

Div. 2. *Corylophi.*

This division contains very small species, most of which are remarkable for having the thorax produced in front above the head, as in Cassida, or Cossyphus. They differ in their habits from the genuine Coccinellæ, most of them being found in putrid vegetable matter. At times they are found flying about at twilight in great numbers.

Redtenbacher has founded upon these insects his family Clypeastres, considering the narrowness of the second tarsal joint and the hood-like form of the thorax as sufficiently important to separate them. The mandibles are usually crenate internally, but according to Erichson there is a gradual transition from that form to the simple mandibles of many Coccinellæ. The hood-like form of the thorax can also be of but little importance, since in the genus Orthoperus, which evidently belongs with Corylophus, this anterior prolongation is wanting. We have thus left only two characters, the narrow tarsi, and the ciliated wings, which however useful for systematic division, seem to be rather slight characters for the establishment of a natural family. In the genus Rypobius the tarsi are also considerably dilated. For these reasons I have followed Erichson in uniting these genera with the Coccinellidæ, establishing, however, a special group under that family for their reception. Clambus must be absolutely excluded from the Coccinellidæ, since the peculiar laminated structure of its posterior coxa is entirely without analogy in this tribe, and is found only in the singular genus Sphærius, placed by Erichson among the Trichopterygia.

I have but one new genus to add to this group. Those found in the United States are thus related:

1. Caput liberum.	
Antennæ 9-articulatæ, tarsi dilatati, ...	RYPOBIUS Lec.
Antennæ 9-articulatæ, tarsi angusti, ...	ORTHOPERUS Steph.
1. Caput obtectum, tarsi angusti.	
Antennæ 9-articulatæ, corpus rotundatum, glabrum, .	CORYLOPHUS Leach.
Antennæ 10-articulatæ, elytra truncata, ...	SERICODERUS Steph.
Antennæ 11-articulatæ, corpus ellipticum, pubescens, .	SACIUM Lec.

rior margin. Elytra tolerably densely, and more coarsely punctured than the thorax, yellow, with a large common sutural black vitta, which fits to the spot on the thorax, and is gradually narrowed behind, reaching nearly to the tip. Body beneath black, densely and not finely punctured: abdominal plates scarcely shorter than the first segment, reaching laterally to the parapleuræ. Feet yellow, thighs a little obscure.

13. S. suturalis, rotundato-ovalis, modice convexus, subtilius punctatus, pubescens, niger, capite thorace elytrisque obscure testaceis, illo macula maxima basali, his vitta suturali lateribusque infuscatis, tibiis tarsisque testaceis. Long. ·08.

One specimen, Colorado River, California. Closely allied to the last, but is less coarsely punctured. Head testaceous, very finely punctured. Thorax narrowed in front, but little rounded on the sides, margined at the base, which is truncate at the scutellum, and very slightly sinuate each side; finely not densely punctured, testaceous, with a very large black spot occupying nearly all the base, and extending almost to the apex. Elytra a little more coarsely punctured than the thorax, testaceous, with a common black sutural vitta broad at the base, and gradually narrowed behind, reaching nearly to the apex, sides from the middle to near the apex blackish; epipleuræ testaceous. Body beneath black, densely punctured; abdominal plates shorter than the first segment, hardly extending as far as the parapleuræ. Feet piceous, tibiæ and tarsi testaceous.

B.—2—d.

14. S. fraternus, rotundato-ovalis, convexus, niger, pubescens, capite, thoracis lateribus, pedibusque testaceis, elytris valde punctatis, apice late rufis. Long. ·09.

Middle States. Rounded, a little oval, convex, black shining, covered with fine gray hair. Head and thorax finely punctulate, yellow, the latter with a large basal black spot; sides rounded, base margined, truncate at the scutellum, and oblique each side. Elytra densely punctured, with a transverse testaceous margin at the apex, which covers about one-fifth of the surface. Body beneath black, densely punctured, abdominal plates shorter than the segment, smooth at the margin, extending as far as the parapleuræ. Feet testaceous, margin of the abdomen rufous.

15. S. hæmorrhous, rotundato-ovalis, convexus niger, pubescens, capite thoracis macula laterali, pedibusque testaceis, elytris grosse punctatis, apice late rufis. Long. ·09.

This species is very similar to the last, but the punctures of the elytra are larger and less dense. I have only a single specimen from New York.

Rounded, slightly oval, convex, black, shining, finely pubescent. Head testaceous, finely punctulate. Thorax black, with a yellow lateral spot reaching from the anterior margin nearly to the base, which is truncate at the scutellum, and oblique each side, marginal line distinct, sides rounded. Elytra forming a distinct angle with the sides of the thorax, coarsely and not densely punctured, with a broad testaceous apical margin covering about one fifth of the surface. Body beneath as in the last, but the sides of the venter are scarcely testaceous. Feet testaceous.

The apical spot is not sufficiently large to permit this species to be referred to S. Brullei Muls. 934.

16. S. chatchas, rotundato-ovalis, convexus, niger punctatus, pubescens. capite thoraceque testaceis, hoc macula basali nigra, elytris margine apicali, ano pedibusque rufo-testaceis. Long. ·09.

Muls. 986.

Atlantic States and Missouri Territory. Broad oval, convex, black, shining and moderately pubescent. Head and thorax finely punctulate, yellow, the latter with a small basal black spot reaching nearly to the middle; very much narrowed in front on the sides, base obtuse at the scutellum, oblique each side, marginal line distinct. Elytra somewhat plumbeous, densely but not deeply punctured, apical margin testaceous. Beneath black, densely punctured, two last segments of the abdomen and feet yellow; the abdominal plates are nearly as long as the segment, smooth, except at base, and extend to the parapleuræ.

17. S. caudalis, breviter ovalis, convexus, niger, pubescens, capite thoraceque punctulatis, rufis, hoc medio nigro, elytris grossius punctatis, margine apicali, ano, pedibusque rufo-testaceis. Long. ·08—·09.

Lec. Agassiz' Lake Superior, 238.

?*Scymnus* (*Pullus*) *creperus* Muls. Cocc. 985.

Georgia and Rocky Mountains. Very similar to the last species, differs only in the punctures of the elytra being larger and less dense, and the spot on the thorax less defined, reaching nearly to the apex. The abdominal plates are as in the last, smooth, except at base. I do not feel certain that this is really Mulsant's species; it agrees better with his S. fastigiatus, (936) but the abdominal plates are distinctly shorter than the segment.

18. S. consobrinus, breviter ovalis, convexus, niger densius pubescens, capite thoraceque subtilius parce punctulatis flavis, hoc medio nigro, elytris sat dense punctatis, margine apicali, ano, pedibusque rufo-testaceis. Long. ·08.

Scymnus caudalis‡Lec. l. c. 238.

One male specimen, Lake Superior. Broadly oval, convex, black, covered with dense gray hair; head and thorax finely and sparsely punctulate, yellow, the latter with a large ill-defined black spot, occupying half the base, and extending nearly to the apex, sides rounded, base margined, obtuse in the middle, oblique each side. Elytra tolerably densely, not deeply punctured, apical margin testaceous. Beneath black, densely punctured, abdominal plates almost reaching the posterior margin of the segment, densely punctured, smooth only at the inner margin, tip of the abdomen testaceous. Feet yellow.

This may be S. fastigiatus, Muls., but as he does not mention the sculpture of the thorax, or abdominal plates, I cannot be certain of its identity. I erroneously considered this as the male of the preceding species.

19. S. puncticollis, breviter ovalis, convexus, niger, pubescens, capite thoraceque dense subtiliter punctatis, hoc macula laterali testacea, elytris dense punctatis, margine apicali, ano, tibiis tarsisque testaceis. Long. ·09.

One female, Upper Mississippi. Broadly oval, convex, black, covered with gray hair. Head finely punctured, mouth testaceous. Thorax black, with a small yellow spot at the anterior angles, finely and densely punctured, margined at the base, which is obtuse in the middle and obliquely sinuate each side. Elytra densely punctured, with a narrow testaceous apical margin. Beneath black, densely punctured, abdominal plates extending almost to the posterior margin of the segment, punctured, smooth towards the inner margin. Sides and tip of the abdomen, tibiæ and tarsi ferruginous; femora piceous.

20. S. cervicalis, rotundato-ovalis, convexus, breviter dense pubescens, niger, capite thoraceque rufis vix subtiliter punctulatis, elytris confertim punctatis, apice angustissima, ano, pedibusque rufis. Long. ·085.

Muls. Cocc. 984.

Common in the Southern States. Rounded, oval, convex, covered with short gray hair. Head very sparsely and finely punctulate, rufous. Thorax rufous, scarcely punctulate, base margined, obliquely subsinuate each side, obtuse in the middle. Elytra shining, black, tolerably densely punctured, extreme apical margin testaceous. Beneath black, coarsely punctured, last joint of the abdomen rufo-piceous: abdominal plates a little shorter than the segment, smooth, punctured at base. Feet rufous.

21. S. socer, rotundato-ovalis, convexus, breviter pubescens, niger, capite thoraceque parce punctulatis, rufis, hoc macula basali nigra, elytris minus dense punctatis, apice angustissima, abdominis apice, pedibusque flavis. Long. ·07.

Georgia, one specimen. Very similar to S. cervicalis, but smaller, and less densely punctured on the elytra. Rounded oval, convex, covered with short gray hair. Head and thorax very sparsely and finely punctured, rufous, the latter with a large black spot occupying more than half the base and reaching nearly to the apex; base margined, obtuse in the middle, oblique and scarcely sinuated each side. Elytra distinctly punctured, black, shining, with the extreme apical margin testaceous. Beneath black, coarsely punctured, last three joints of the abdomen yellow; abdominal plates shorter than the segment, smooth, punctured only at their base. Feet yellow.

B—2—e.

22. S. **marginicollis**, rotundato-ovalis, convexus, longius pubescens, niger, capite thoraceque subtilius punctulatis rufis, hoc macula basali nigra, elytris sat dense punctatis, femoribus anticis rufis. Long. ·095.

Mannerheim, Bull. Mosc. 1843, 313. Muls. Cocc. 1053.

San Francisco and San Diego, California. Rounded oval, convex, covered with longer gray hair than usual. Head and thorax finely and sparsely punctulate, rufous; the latter with a basal black spot, small in the male, large in the female, base very finely margined, scarcely sinuate. Elytra not deeply but tolerably densely punctured, entirely black. Body beneath black, densely punctured, abdominal plates a little shorter than the segment, smooth at their margin. Feet black, anterior thighs rufous.

23. S. **tenebrosus**, subhemisphericus, niger, pubescens, thorace subtilius punctulato, elytris minus dense punctulatis, pedibus testaceis. Long. ·095.

Muls. Cocc. 989.

Southern States, not common. Almost hemispherical, black, shining, covered with fine pubescence. Head finely punctured, testaceous in the male, black in the female; mouth testaceous. Thorax sparsely and finely punctulate, base margined, obtusely truncate at the middle, obliquely subsinuate each side. Elytra distinctly, but not densely punctured. Beneath black, coarsely punctured; abdominal plates a little shorter than the segment, posteriorly smooth. Feet testaceous.

24. S. **lacustris**, breviter ovalis, convexus, niger, pubescens, elytris sat dense punctatis, pedibus testaceis basi nigris. Long. ·09.

Le Conte, Agassiz' Lake Superior, 239; Muls. Cocc. 989.

Var. *S. nigrivestis*, Muls. Cocc. 990.

North Shore of Lake superior. Very similar to the preceding, but easily distinguished by the color of the feet. Oval, almost hemispherical, shining black finely pubescent. Head finely punctured, mouth testaceous. Thorax sparsely and finely punctured, base margined, truncate in the middle, oblique each side Elytra moderately densely punctured. Body beneath black, densely punctured more finely upon the abdomen; abdominal plates scarcely shorter than the segment, smooth, punctured at base. Feet testaceous, femora black for two-thirds the length. The apex of the abdomen of the male is more deeply impressed than usual. Varies with the feet entirely black.

25. S. **abbreviatus**, breviter ovalis, convexus, niger pubescens, elytris confertim punctatis, pedibus rufo-piceis, abdominis laminis brevibus. Long ·085.

One female, Eagle Harbor, Lake Superior. Oval, almost hemispherical black, densely pubescent. Head finely and densely punctured. Thorax sparsely punctured on the disc, densely at the sides, base finely margined obtusely rounded in the middle. Elytra densely and coarsely punctured. Body beneath densely punctured; abdominal plates three-fifths as long as the segment, margin smooth. Feet entirely dark rufous.

26. S. **nanus**, rotundato-ovalis, convexus, nigro-piceus, parce pubescens thorace parce punctulato, elytris parce minus subtiliter punctatis, pedibus rufis Long. ·06.

Two specimens, Missouri territory. Oval rounded, convex, blackish piceous sparsely covered with fine pubescence. Head finely punctulate, mouth rufous Thorax finely and sparsely punctulate, anterior angles rufous; base margined obtuse in the middle. Elytra distinctly, but not densely punctured. Body beneath punctured, abdominal plates not shorter than the segment, smooth a their margin, scarcely extending to the parapleuræ. Feet rufous. Anus of the male broadly emarginate.

27. S. **punctum**, rotundato-ovalis convexus niger, parce pubescens, thorace lateribus confertim punctatis, elytris subtiliter parce punctatis, pedibus testaceis, femoribus posterioribus piceis. Long. ·05.

Two specimens, North shore of Lake Superior. On account of its size and form it resembles the preceding, but the coarsely punctured thorax distinguishes it. Rounded oval, convex, shining black, covered with fine and sparse pubescence. Head obsoletely punctulate, antennæ yellow. Thorax finely and sparsely punctured at the middle, coarsely and densely at the sides, base margined, obtuse in the middle, subsinuate each side. Elytra finely and sparsely punctured. Body beneath coarsely punctured, abdominal plates smooth, punctured at base, considerably shorter than the segment, not extending laterally to the parapleuræ. Feet testaceous-yellow, four posterior thighs piceous.

The following species I have not seen:
S. **ochroderus** Muls. var. *xanthaspis*, Muls. 952.
S. **myrmidon** Muls. 954.
S. **icteratus** Muls. 969.
S. **Brullei** Muls. 954.
S. **fastigiatus** Muls. 986.
S. **punctatus** Mels. Pr. Ac. Nat. Sci. 3, 180.
S. **collaris** Mels. ibid., is probably one of the species in B—2—d, but the description is not sufficiently definite to permit its determination.

Div. 2. *Corylophi.*

This division contains very small species, most of which are remarkable for having the thorax produced in front above the head, as in Cassida, or Cossyphus. They differ in their habits from the genuine Coccinellæ, most of them being found in putrid vegetable matter. At times they are found flying about at twilight in great numbers.

Redtenbacher has founded upon these insects his family Clypeastres, considering the narrowness of the second tarsal joint and the hood-like form of the thorax as sufficiently important to separate them. The mandibles are usually crenate internally, but according to Erichson there is a gradual transition from that form to the simple mandibles of many Coccinellæ. The hood-like form of the thorax can also be of but little importance, since in the genus Orthoperus, which evidently belongs with Corylophus, this anterior prolongation is wanting. We have thus left only two characters, the narrow tarsi, and the ciliated wings, which however useful for systematic division, seem to be rather slight characters for the establishment of a natural family. In the genus Rypobius the tarsi are also considerably dilated. For these reasons I have followed Erichson in uniting these genera with the Coccinellidæ, establishing, however, a special group under that family for their reception. Clambus must be absolutely excluded from the Coccinellidæ, since the peculiar laminated structure of its posterior coxa is entirely without analogy in this tribe, and is found only in the singular genus Sphærius, placed by Erichson among the Trichopterygia.

I have but one new genus to add to this group. Those found in the United States are thus related:

1. Caput liberum.
Antennæ 9-articulatæ, tarsi dilatati, ... Rypobius Lec.
Antennæ 9-articulatæ, tarsi angusti, ... Orthoperus Steph.
1. Caput obtectum, tarsi angusti.
Antennæ 9-articulatæ, corpus rotundatum, glabrum, . Corylophus Leach.
Antennæ 10-articulatæ, elytra truncata, ... Sericoderus Steph.
Antennæ 11-articulatæ, corpus ellipticum, pubescens, . Sacium Lec.

RYPOBIUS Lec.

Caput thorace non obtectum, clypeo prolongato; antennæ longiusculæ, inter oculos insertæ, 9-articulatæ, articulo 1mo magno conico, 2ndo oblongo sesqui breviore et angustiore, 3 et 4 parvis tenuissimis; 5to iterum elongato, crassiore conico, 6to minuto, ultimis tribus interne dilatatis latitudine non brevioribus, clavam oblongam formantibus; tarsi 4-articulati, articulo 2ndo dilatato, lobato, 3io recepto, unguiculari elongato, unguibus simplicibus.

This genus agrees closely in characters with the next, but differs by its broad tarsi, which are similar to those of the genuine Coccinellidæ. The thorax is rounded in front, extending slightly over the head, but not concealing it. The posterior angles are rectangular, not produced; the elytra are subtruncate at the apex. The body is elliptical, a little narrowed behind, moderately convex and glabrous. The prosternum is very narrow and acute, the mesosternum extremely small and rounded in front; the tibiæ are a little dilated towards the extremity.

1. R. marinus, nigro-piceus, nitidus, subtilissime alutaceus, thoracis angulis posticis, epipleuris, tibiis tarsisque rufescentibus. Long. ·04.

Two specimens found at Coney Island under a dead Limulus Polyphemus. Shining piceous black, very finely rugous, moderately convex. Antennæ testaceous at the base. Thorax twice as wide as long, almost semi-circular, very slightly sinuous at the apex, finely margined on the sides, base straight, posterior angles subrectangular, somewhat rufous. Scutellum distinct. Elytra one-half longer than wide, a little narrowed behind, conjointly broadly rounded at the apex, very indistinctly punctulate; epipleuræ rufo-piceous; feet piceous, tibiæ and tarsi paler.

MICROSPHŒRA Redt.

Caput liberum. Antennæ breviusculæ, 9-articulatæ, inter oculos insertæ, articulo 1mo magno, conico, 2ndo vix breviore et sesqui tenuiore, 3io et 4to minutis, 5to conico crassiore et longiore, 6to iterum minuto, tribus ultimis intus dilatatis crassitie subbrevioribus; tarsi non dilatati, articulo 2ndo paulo breviore, 3io fere obsoleto, unguiculari elongato, unguibus integris.

I have a little hesitation in referring the species here described to Redtenbacher's Microsphœra, as the mandibles are not entire, as described by him, but armed with three very minute teeth. The palpi agree in form, but the third joint of the tarsi is not cordiform, and indeed is scarcely visible. Redtenbacher's insect is pubescent, while ours is glabrous, and this character is one of great constancy in this family. The genus Orthoperus (Stephens) also agrees nearly with our insect, but is described as having the club of the antennæ two-jointed: the inaccuracy of the English authors in the description of minute species is, however, so well known, that no great stress should be laid upon that character, especially as according to all analogy it must be impossible in this tribe for a genus to have but two joints in the antennal club. Pithephilus (Heer.) is considered by Erichson as identical with Microsphœra (Redt.), although it is described as having pentamerous tarsi. This mistake might readily occur, as the joints are very closely united. There can be no doubt about the proper place of the genus in this tribe, as the wings are strongly ciliated just as in Corylophus.

1. M. glabra, nigro-picea, ovata, nitida, elytris obsoletissime punctulatis. Long. ·02.

Middle and Southern States; on leaves. Ovate, a little narrowed behind, moderately convex, entirely piceous black, shining. Head deflexed, thorax more than twice as wide as long, narrowed in front, emarginate at apex, scarcely margined on the sides; base obsoletely sinuate, posterior angles rectangular. Scutellum minute. Elytra narrowed a little posteriorly, rounded at the apex, and a little shorter than the abdomen, very sparsely and obsoletely punctured; feet slender, black.

One specimen, Missouri Territory. Much smaller and broader than S. fasciatum, piceous black, finely pubescent, thorax black in the middle, margin testaceous and diaphanous at the sides and apex; base sinuated. Elytra not wider than the thorax, finely not very densely punctulate, marked with a yellow lunate spot behind the middle; apex broadly rounded, margined with yellow, which extends a short distance along the sides. Body beneath black, feet dark piceous.

7. S. **decolor**, ellipticum, rufo-piceum, subtiliter pubescens, thorace pallidiore medio obscuro, elytris subtiliter punctulatis, pedibus flavis. Long. ·03.

Two specimens, San Jose, California. Elliptical, rufo-piceous, finely pubescent. Thorax paler, diaphanous at the sides, dark in the middle, almost semicircular, slightly sinuate at the base. Elytra very finely punctulate, rounded at the apex. Body beneath piceous, abdomen paler; feet yellowish.

8. S. **misellum**, latius ellipticum, rufo-piceum, valde punctulatum, brevissime pubescens, thorace valde marginato, medio obscuro, pedibus testaceis. Long. ·03.

Two specimens, New York. Broader than most of the preceding species, very slightly clothed with extremely short hair, entirely rufo-piceous, and strongly punctulate. Thorax semi-circular, strongly margined, paler than the elytra, diaphanous at the sides, darker in the middle, base finely margined, scarcely sinuate. Elytra broadly rounded at the apex; body beneath rufo-piceous, feet testaceous.

9. S. **scitulum**, late ellipticum, nigrum, subtilissime pubescens, thorace flavo, puncto antico obscuro, elytris subtiliter punctulatis, fascia postica lata, margine apicali pedibusque flavis. Long. ·025.

Colorado River, California. Smaller than the others, and more broadly oval, very finely pubescent. Thorax yellow, semi-circular, with a dark spot near the anterior margin. Elytra black, very finely punctulate, with a broad testaceous fascia behind the middle, scarcely reaching the sides, apex rounded, narrowly margined with yellow. Body beneath black; abdomen testaceous, feet yellow.

Description of a New Species of TROMBIDIUM.

BY JOHN L. LE CONTE, M. D.

T. **magnificum**, ovatum, postice angustatum et obtusum, densissime miniato-velutinum, pedibus subæqualibus, rostro conico, apice obtuso. Long. ·32,—lat. ·23.

Texas, Dr. S. W. Woodhouse. This fine species is remarkable for its great size, being equal to T. **tinctorium**. It belongs however to a different division of the genus, the eyes being placed immediately above the first pair of legs. The rostrum is conical, and obtuse at the apex. The palpi are conical, more than three times as long as the rostrum, thick at the base; the terminal hook is longer than the penultimate joint, and is glabrous only at the apex; the inferior appendage is a little longer than the hook, and very pilose, it appears rounded at the extremity. The feet are two-thirds the length of the body, the first and fourth pairs a little longer than the intermediate ones.

The body is soft, somewhat trapezoidal, narrowed and obtusely rounded behind, less rounded in front, with the sides slightly sinuous in the middle. The color is dark cinereous, above and beneath covered with very fine fur which is of a bright vermilion color, becoming gray at the base of the legs. In the best preserved specimens, the upper surface is irregularly impressed, resembling the convolutions of the brain.

ELECTIONS.

Mr. G. W. Fahnestock, E. Brown Sequard, M. D., and Henry J. Biddle, Esq., all of Philadelphia, were elected *Members*, and

Mr. Dexter Marsh, of Greenfield, Mass., Commander William F. Lynch, U. S. N., and Dr. Wm. F. Daniel, of London, were elected *Correspondents* of the Academy.

September 7th, 1852.

Vice-President BRIDGES in the Chair.

Letters were read

From the Secretary of the Trustees of the New York State Library, dated Albany, September 14th, 1852, acknowledging the receipt of the Proceedings of the Academy, Vol. 6, No. 3.

From the Secretary of the American Philosophical Society, dated August 20th, 1852, also acknowledging the receipt of a late number of the Proceedings.

Dr. Le Conte read a paper, intended for publication in the Proceedings, entitled "Description of a new species of Sciurus," which was referred to Dr. Ruschenberger, Dr. Leidy, and Dr. Camac.

Dr. Le Conte presented a second paper, also intended for the Proceedings, entitled "Catalogue of the Melyrides of the United States, with descriptions of new species." Referred to the same Committee.

Mr. Cassin announced to the Society the return of Adolphus L. Heermann, M. D., a member of this Society, after a residence of nearly three years in various parts of California. Dr. H. visited that country for the express purpose of investigating its ornithology, and making collections in that, and in other departments of natural history, which he has done with great judgment and unrivalled zeal, and has brought home the most extensive and valuable collection of birds ever made in that country, with many other interesting objects.

Dr. Genth made some remarks on two series of very interesting salts, discovered by him about five years ago. They have conjugate bases, containing cobalt and ammonia. The salts of one of the bases have red colors of different shades between carmine and cherry-red; those of the other base are orange-colored. The red salts are very easily decomposed. The two bases and about fifty different salts have been made, most of them in beautiful crystals. Dr. Genth stated that (as his time is very limited) Dr. Wolcott Gibbs, of New York, who has already prepared some of these salts, independently of his own experiments, has promised him, at his request, to join his labor in completing this investigation, after which both chemists intend to publish their results under their joint names.

September 14th.

Vice-President BRIDGES in the Chair.

Letters were read

From Mr. G. W. Fahnestock, dated Philadelphia, September 8th, 1852, acknowledging the receipt of his notice of election as a Member.

From Dr. G. G. Bischoff, dated Reading, Pa., June 11th, 1852, accompanying his donation announced this evening.

Mr. Ashmead called the attention of the members to the collection of marine Algæ presented by him this evening. He said it was remarked by Harvey in the "Nereis Boreali-Americana," that after passing New York, the almost unbroken line of sand is nearly destitute of Algæ. "I have not," he adds, "received any collection of sea plants made between Long Branch and Wilmington."

However barren of Algæ may be the shifting sands along the coast of New Jersey, the floating spores have been carried into the inlets, and found a lodg-

ment in the shallow bays, on the steep banks of the deeper thoroughfares, and in the second from the Great Egg Harber river to Cape Island. Algæ occur in great abundance, parasitical on the common eel grass (Zostera marina,) which is so extensively dispersed in the bays, and on the bars in the vicinity of Beesley's Point, and which grows with such luxuriance as seriously to obstruct the passage of boats when the tide is out. I found Algæ growing on the oyster beds, on sand bars, mud flats, also on shells, sods, and such submerged substances as afforded a resting place.

The submerged portions of the ship Rhine, which went ashore last winter at Corson's Inlet, are already literally covered with marine vegetation.

From the want of a standard collection in the Academy, I am unable at present, with my limited knowledge of the science, to determine satisfactorily many of the species. Among the specimens on the table will be found:

Fucus vesiculosus, Linn. Very common.
Ectocarpus littoralis, Lyng.
Ceramium rubrum, Ag. }
C. diaphanum, Ag. } **parasitic on Zostera marina.**
Callithamnion polyspermum, Ag.
Nemaleon ——— ?
Laurencia tenuissima, Grev.
Polysiphonia, several species.
Bryopsis plumosa, Ag.
Lyngbia ——— ?
Ulva latissima, Linn.
Rhabdonia Baileyi, Harvey.
Ulva compressa.

September 21st.

Vice-President BRIDGES in the Chair.

Dr. Leidy presented a paper from Prof. S. F. Baird and Charles Girard, intended for publication in the Proceedings, on the "Characteristics of some new Reptiles in the Museum of the Smithsonian Institution," which was referred to Dr. Hallowell, Dr. Le Conte, and Dr. Leidy.

Dr. Le Conte presented a paper, intended for publication in the Proceedings, entitled "Synopsis of the Scydmænidæ of the United States." Referred to Dr. Leidy, Dr. Fisher, and Dr. Zantzinger.

Dr. Le Conte presented a second paper, also intended for publication, entitled "An attempt at a Synopsis of the genus *Geomys* Raf.," which was referred to Dr. Wilson, Mr. Cassin, and Dr. Woodhouse.

Dr. Leidy called the attention of the Society to a fragment of a jaw containing two teeth of Tapirus Haysii. This species had been characterized by him at a previous meeting, from a single tooth presented by Dr. Hays to the Academy, and which at that time was the only portion known. The present specimen is from the Post Pleiocene, near Natchez, Miss., and was sent to Dr. Leidy by Mr. Wailes.

September 28th.

MR. ORD, President, in the Chair.

The Committee to which had been referred the following papers by Dr. J. L. Le Conte, reported in favor of publication in the Proceedings.

Description of a New Species of SCIURUS.

By JOHN L. LE CONTE, M. D.

SCIURUS HEERMANNI Lec.

Supra e nigro alboque intermixtis griseus, subtus albus, auribus magnis breviter pilosis, naso nigro, cauda disticha, albo-marginata, corpore non breviore.

From tip of nose to root of tail, - - -	12·5 inches.
Head, - - - - - - - -	3.2
Length of ear, - - - - - - -	·9
Breadth of ear, - - - - - - -	·7
Fore foot to end of longest claw, - - -	2·1
Hind foot to end of longest claw, - - -	3·2
Tail to end of vertebræ, - - - - -	9·8
Tail to end of hair, - - - - - -	13.

California, from Dr. Heermann. Body above entirely of a light grey color, produced by an intermixture of black and white points; the hairs individually are long and not fine; they are gray at base, soon becoming black, and have a pure white band about the middle; intermixed with them are a few longer pure black hairs. On the upper surface of the feet the hair is shorter, and the black part comparatively smaller. A small spot towards the tip of the nose, and an indistinct line above the eyes are black. The whiskers are shorter than the head and entirely black. The ears are large, subtriangular, rounded at the tip, and covered both within and without with short gray hair, which does not in any way form a fringe at the margin. Beneath the body is pure white, except the perineum, which is gray. Tail long and distichous, with long hairs which are black, with a gray base and white tip; in those towards the edge the black color is less developed, and some are even whitish with three black bands, of which the outermost is very distinct. The tail thus appears gray, becoming black externally, with a broad white margin; beneath it is a little lighter in color.

This species is one of a multitude of interesting objects procured by Dr. A. L. Heermann during a three years' residence in California. I beg him to accept the dedication of it as a slight token of my appreciation of this active exertion in studying the habits of animals, and collecting specimens in the less frequented portions of our territory.

At first sight S. Heermanni bears a strong resemblance to several gray squirrels found in the Atlantic States, more especially to S. cinereus, but the much larger size of the ears, the deeper gray color of the upper surface of the feet, and the absence of any brown color about the head, at once distinguish it from all its neighbors.

Synopsis of the SCYDMÆNIDÆ *of the United States.*

By JOHN L. LE CONTE, M. D.

Since the publication of the extremely classical monograph of Scydmænus by Dr. Schaum,* and his corrections to the same,† the number of species found in America has been greatly increased. A journey by Dr. Schaum to this country has contributed largely to this result, and to him I am indebted for a fine series of the species found by him, mostly in Louisiana. To M. Em. Wapler, late of New Orleans, I must also express my acknowledgements for a beautiful series of Scydmæni, as well as other minute Coleoptera of Louisiana. The other species described below have mostly been procured in my travels in the Southern States; a few are from California, but the distribution of this genus in the western and northern parts of the continent appears to be very limited. The new Cephennium is an interesting addition to our fauna. The new genus Brathinus must, I think, be considered as the American representative of Mastigus of the old world. Eutheia is not yet discovered on this continent, nor have we any form which corresponds to it. Our three genera may be easily distinguished follows:

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* Analecta Entomologica.

† Germar's Zeitschrift für Entomologie, vol. 5.

A. Palpi maxillaries articulo ultimo minutissimo.
  Palpi labiales articulo primo elongato, mandibulæ apice emarginatæ (thorax amplus) . . CEPHENNIUM Müll.
  Palpi labiales articulo primo brevissimo, mandibulæ acuminatæ (thorax parvus) . . . SCYDMÆNUS Latr.
B. Palpi maxillares filiformes, articulo ultimo longiore BRATHINUS Lec.

CEPHENNIUM Müller.

Megaloderus Steph. *Tyttosoma* Wesmael.

1. C. corporosum, piceum flavo-pubescens, thorace angulis posticis subexplanatis, elytris vix punctulatis basi foveatis, striolaque externa notatis, pedibus antennisque testaceis, his articulis tribus ultimis maioribus. Long. ·035.

New York, under stones in April very rare. Blackish piceous, sparsely clothed with fine yellow hair. Head small, smooth; antennæ testaceous, half as long as the body, 9th joint one half thicker than the 8th, rounded, a little transverse, 10th still larger, subtransverse, 11th longer than the 10th and obtuse. Thorax very transverse, sides parallel behind the middle, much rounded anteriorly, posterior angles rectangular, a little flattened. Elytra scarcely narrower than the thorax, convex, finely and sparsely punctulate, base impressed with a deep stria near the humerus, extending one-third the length of the elytra, and a large fovea half way between the stria and scutellum. Anus and feet bright testaceous, thighs not clavate.

SCYDMÆNUS Latr.

I have adapted Schaum's division of the genus to our native species without alteration, as it appears scarcely susceptible of any improvement; for convenience I have divided the group (B) differently, as several European forms in it are wanting in this country.

1. Palpi maxillares articulo 4to subulato.

A. Collum thoraci immersum, thorax cordatus, antennæ sensim incrassatæ: mesosternum parum carinatum. Sp. 1—6.

B. Collum thoraci non immersum; thorax subquadratus, antennæ extus subito, vel subsubito incrassatæ.

a. Antennæ articulis quatuor incrassatis.

α. Thorax trapezoideus, cum elytris angulum non formans. Sp. 7—14.

β. Thorax antrorsum subangustatus, cum elytris angulum formans. Sp. 15—20.

b. Antennæ articulis tribus incrassatis. Sp. 21—15.

c. Antennæ feminæ gradatim incrassatæ, maris irregulares. Sp. 26.

2. (C.) Palpi maxillares articulo 4to obtuso, conico, indistincto. Sp. 27.

A.

1. S. subpenctatus, piceus, parce pubescens, vertice bifoveato, thorace ante basin transversim impresso, lateribus foveato, coleopteris rufo-piceis, oblongo-ovalibus, parce punctulatis, pedibus rufo-piceis. Long. ·065.

Lake Superior and St. Mary's River. Shining piceous, smooth, more elongate than usual. Head flattened, vertex bifoveate, front a little retuse; palpi testaceous; thorax longer than wide, slightly campanulate, not narrowed behind, foveate each side near the base, and slightly transversely impressed at the middle of the base. Elytra elongate oval, nearly twice as wide as the thorax in their widest part, convex, sparsely and finely punctured with a fine hair proceeding from each puncture; base each side bifoveate. Legs slender, thighs rufo-piceous, tibiæ and tarsi testaceous.

2. S. mariæ, rufo-piceus, parce pubescens, vertice bifoveato, thorace campanulato ante basin obsolete impresso, lateribus foveato, coleopteris ovalibus obsolete parce punctulatis. Long. ·065.

One specimen, St. Mary's River, Michigan. This species is very similar to the preceding, but the thorax is more rounded on the sides anteriorly, and distinctly narrowed behind; the basal impression is hardly visible, the lateral foveæ are less deep; the elytra are wider and much less distinctly punctured; the base is marked as in the preceding with four punctures, causing the humeri and suture to appear elevated.

3. S. cribrarius, rufus, nitidus, flavo-pilosus, thorace basi subtiliter 4-punctato, elytris elongato-ovalibus, grosse punctatis. Long. ·04.

Habersham County, Georgia. This species very much resembles the next, but the color is paler, the form a little less slender, and the punctures of the elytra more numerous and less large; as in it the anterior thighs are much incrassated, the others are slender. The thorax is narrowed behind, not sinuate on the sides, and the basal punctures are very small.

4. S. perforatus, nigro-piceus, pilosus, thorace basi 4-punctato et transversim impresso, coleopteris elongato-ovatis, minus dense variolosis, antennis pedibusque flavis. Long. ·04.

Schaum, Analecta Entomologica, 9.

New York and Massachusetts, rare. The thorax is slightly sinuate on the sides.

5. S. sparsus, rufo-piceus, pilosus, thorace postice angustato, basi 4-punctato, et transversim subimpresso, coleopteris elongato-ovatis, parce punctatis, basi utrinque bifoveatis. Long. ·04.

San Jose, California. Form and size of S. perforatus, but the thorax is not sinuate on the sides, and the elytra are foveate at base: the punctures are small and much less dense than in S. cribrarius.

6. S. angustus, valde elongatus, piceus, subtiliter pubescens, thorace elongato, ovato, elytris minus convexis, sutura ad basin, humerisque elevatis, antennis extrorsum magis incrassatis. Long. ·03

San Jose, California. A small species very remarkable by its narrow form. By the shape of its thorax, which is neither cordate nor quadrate, but oval and narrowed posteriorly, it seems to ugite Schaum's groups 1 and 2 (Germ. Zeitschr. 5, 465). The antennæ and feet are ferruginous, or rufo-piceous; the former are more thickened externally than in the preceding species, and are not longer than the head and thorax: the thighs are somewhat dilated.

B.—a—*a*.

7. S. Schaumii, fusiformis, pilosus, rufo-piceus, thorace antrorsum angustato, basi non impresso, elytris basi subfoveolatis, pedibusque rufis, femoribus valde clavatis. Long. ·08.

Louisiana, Dr. Schaum. One of the largest of our species, and easily distinguished by its rufous elytra and unimpressed thorax. Body fusiform, wider posteriorly, rufo-piceous, shining. Head densely covered with erect reddish hair; antennæ as long as the head and thorax, rufous, joints 3—6 small, equal, 7th a little longer and thicker; 8—10 about one half longer and thicker than the 7th, globose; 11th oval, subacute: penultimate joint of the maxillary palpi regularly obconical, the last very small. Thorax longer than wide, densely pilose, narrowed in front, sides straight, base slightly rounded, not impressed. Elytra at the middle about one-fourth wider than the thorax, impunctured, rufous, not very densely covered with long hairs, humerus elevated, suture anteriorly depressed, base with a very small fovea inside of the humeral impression. Beneath piceous, anus testaceous. Feet entirely rufous, thighs very clavate.

8. S. flavitarsis, latius fusiformis, pilosus, piceus, thorace antrorsum angustato, basi non impresso, elytris basi vix impressis, femoribus valde clavatis, tibiarum apice tarsisque flavis. Long. ·08.

One specimen, New York. Wider than the preceding, which it very much resembles; the antennæ are dark rufous, they are formed as in S. Schaumii, but the 7th joint is not perceptibly larger than the 6th. The elytra at the middle are fully one-third wider than the thorax; the humerus is elevated and the base is depressed from the humerus to the suture, but not foveate. The feet are piceous, the thighs are very clavate, the extreme tip of the tibiæ, and the whole of the tarsi are pale yellow. The last joint of the maxillary palpi is much larger than in S. Schaumii.

9. S. fossiger, latius fusiformis, pilosus, piceus, thorace antrorsum valde angustato, basi non impresso, coleopteris basi 4-foveatis, femoribus valde clavatis, tarsis flavis. Long. ·08.

One specimen, Cambridge, Mass. Very similar to S. flavitarsis: the thorax is much more narrowed in front, so that the apex is scarcely half as wide as the base: the elytra at the middle are one-third wider than the thorax, the humeri are elevated and the suture depressed, there are two basal foveæ, of which the inner is the smaller. The antennæ are precisely as in S. flavitarsis; the palpi are yellowish, with the last joint distinct.

10. S. capillosulus, latius fusiformis, pilosus, rufo-piceus, thorace antrorsum angustato, basi subtiliter transversim impresso, coleopteris basi subfoveolatis, pedibus rufis, femoribus valde clavatis. Long. ·08.

Georgia, Pennsylvania and New York. Sometimes in the nest of a small fuscous ant with rufous legs. This species is very similar to S. Schaumii, but is wider, and is known at once by the impressed line at the base of the thorax. The antennæ and palpi are precisely as in S. Schaumii: the humeri are more elevated, the suture is a little elevated at base, and marked with a fine impressed line, which curves around the base reaching the humeral fovea, the elytra at the middle are fully one-third wider than the thorax.

11. S. basalis, fusiformis, pilosus, rufus, thorace antrorsum angustato, basi. subtiliter transversim impresso, coleopteris basi foveolatis, antennarum articulis intermediis rotundatis, femoribus valde clavatis. Long. ·06.

Georgia and Louisiana. Very similar to the preceding, but smaller. The antennæ are as long as the head and thorax, the joints 3—7 are rounded, not longer than wide: the three next are larger and also rounded; the last longer, oval and subacute: on the elytra, the suture is a little elevated anteriorly and marked with a slight stria; the base is slightly bifoveate, and the humeri are elevated.

12. S. hirtellus, latius fusiformis, breviter pilosus, rufus, thorace antrorsum angustato, basi non striato, elytris obsolete punctulatis, basi vix foveatis, antennis breviusculis articulis intermediis rotundatis, femoribus valde clavatis. Long. ·05.

Georgia. This species is smaller than S. basalis, and the antennæ are shorter and less slender. The unimpressed thorax, shorter pubescence and scarcely foveate elytra will readily distinguish it from the other species in which the thorax and elytra form a regular outline, without any re-entering angle. One specimen has the 8th joint of the antennæ intermediate in size between the 7th and 9th, so that the club appears only three-jointed. I am unable to perceive any other difference, and in the absence of other specimens, leave it under the present species.

13. S. analis, fusiformis pilosus, thorace antrorsum angustato, basi non striato elytris vix obsolete punctulatis, basi unifoveatis, antennis longiusculis articulis intermediis subrotundatis, ano pedibusque flavis, femoribus clavatis. Long. ·045.

Louisiana, Schaum and Wapler. This species is very similar to the preceding, but is narrower, being of the form of S. basalis, with which it agrees also in the antennæ, but differs in size, and in having no impression at the base of the thorax. The feet are testaceous, the thighs are darker: the tip of the abdomen beneath is yellowish.

14. S. brevicornis, piceus, subfusiformis, dense sordide pubescens, thorace antrorsum angustato, elytris basi vix foveatis, antennis breviusculis, articulis intermediis subrotundatis, femoribus valde clavatis. Long. ·055

Say, Long's Exped. to St. Peter's River, 2,273: Schaum, An. Ent. 19.*

New York and Pennsylvania, in the nests of a small black ant. This species is more obtusely rounded behind than the preceding species of this division. The pubescence is more prostrate, and very dense. The antennæ are not longer than the head and thorax: the four last joints form a club larger in proportion than in the other species, and as long as the other joints collectively. The thorax is less narrowed in front than in the preceding species, and is a little rounded on the sides: there is no impression at the base: the elytra are slightly foveate inside of the humerus.

B.—a—β.

15. S. rasus, testaceus, glaber, thorace longiusculo, lateribus subrotundato, basi utrinque foveato, transversim impresso, elytris convexis basi foveatis. Long. ·075.

Pennsylvania, Haldeman; found with a small fuscous ant. This species is of a bright testaceous color, and entirely glabrous. The head is convex and rounded. The antennæ are longer than the head and thorax, the joints 3—7 are cylindrical, the four last are globular and about twice as thick as those which precede them. The thorax is a little wider than the head, longer than wide, slightly narrowed in front, very slightly rounded on the sides, flattened on the disc, and deeply foveate near the basal angles: the foveæ are connected by a transverse impression. The elytra are twice as wide as the thorax, regularly oval and convex, forming a slight angle with the thorax; the base is broadly foveate inside of the humerus. The anterior thighs are strongly clavate.

16. S. obscurellus, piceus breviter pubescens, thorace longiusculo, antice subangustato, elytris basi vix impressis, antennis articulis rotundatis, pedibusque rufescentibus. Long. ·045

One specimen, Liberty County, Georgia. A small species, easily distinguished by its piceous color and elongate thorax. Head convex, smooth, strongly pilose at the posterior angles: antennæ a little longer than the head and thorax, the joints after the 2d globular, the four last about one-third thicker than those which precede, the last being larger and obtuse. Thorax pilose, not wider than the head, nearly one-half longer than wide, very slightly narrowed in front, apex truncate, sides straight. Elytra one-half wider than the thorax, and forming an almost indistinct angle with it, obliquely narrowed behind the middle, slightly pubescent: base scarcely foveate. Feet rufous, thighs clavate.

18. S. clavatus, rufo-piceus, tenuiter pubescens, thorace longiusculo, antice angustato, basi tenuiter impresso, elytris dorso depressis, basi unifoveatis, antennis fortius clavatis articulis suptransversis. Long. ·045.

One specimen, Liberty County, Georgia. Elongate rufo-piceus; head convex, very strongly pilose, each side posteriorly so as to appear truncate at base: antennæ as long as the head and thorax, joints 3—6 rounded, short, closely united:

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* Schaum erroneously cites the Journal of the Academy of Natural of Sciences for the descriptions of this species, and S. clavipes.

7th very little larger, globular: 8—10, one-half wider, rounded, somewhat transverse, 11th nearly twice as long as the 10th, and obtuse. Thorax not wider than the head, longer than wide, narrowed in front, very slightly narrowed on the sides, finely pubescent, disc a little flattened, finely impressed transversely near the base. Elytra scarcely one-third wider than the thorax, and forming with it a very obtuse but distinct angle: elongate oval, disc flattened, finely pubescent, very obsoletely punctulate, base with a fovea inside of the humerus. Legs testaceous, anterior thighs strongly, posterior moderately incrassated.

18. S. clavipes, piceus, capite glabro, thorace dense piloso, longiusculo, antrorsum angustato et rotundato, basi transversim impresso, elytris rufescentibus parce pilosis, basi foveatis, antennis articulis elongatis, femoribus clavatis. Long. ·05—·06.

Say, Long's Exped. to St. Peter's River, 2,272 : Schaum, Anal. Entom. 18.

Lake Superior, Georgia, Louisiana. A darker variety is S. pilosicollis of my catalogue of Lake Superior Coleoptera in Agassiz' Lake Superior. The head is smaller in this than in the preceding species, oval, and glabrous; the elongate slender antennæ will also easily distinguish it; their four last joints are nearly one half thicker than those which precede, and are also longer than wide. The female has broader elytra than the male, and somewhat shorter antennæ.

19. S. consobrinus, nigro-piceus, capite glabro, thorace longiusculo, piloso antrorsum angustato et rotundato, basi transversim impresso, elytris parce pilosis basi foveatis, antennis articulis penultimis rotundatis, femoribus clavatis. Long. ·05.

One specimen, New York. In form this species is precisely similar to the preceding, but the difference in the antennæ seems sufficient to separate it. These organs are here somewhat longer than the head and thorax; the joints 3—6 are equal, closely connected, and not longer than wide; the seventh is a little larger and slightly conical; 8th, 9th and 10th are rounded, not longer than wide; the 11th one half longer and subacute.

20. S. bicolor, elongatus, piceus, capite glabro, thorace piloso elongato subcampanulato, basi transversim impresso, elytris parce piloso, non foveatis, palpis pedibus antennisque testaceis, his articulis rotundatis, penultimus subtransversis. Long. ·06.

One specimen, Georgia, with Formica pensylvanica. More narrow than S. clavipes, piceous, very shining. Head elliptical, smooth, glabrous; antennæ a little longer than the head and thorax, testaceous, joints 3—6 equal rounded; 7th one third larger, globular; 8—10 one half wider than the 7th, rounded, slightly transverse, 11th not transverse, obtuse. Thorax covered with erect hair; one half longer than wide, sides posteriorly straight, anteriorly much rounded; base strongly impressed and subfoveate. Elytra twice as long as wide, nearly twice as wide as the thorax, regularly narrowed each way from the middle, smooth, not foveate at the base, with a few fine long hairs, especially towards the margin. Feet yellow testaceous, thighs strongly clavate.

B—b.

21. S. salinator, nigro-piceus, thorace piloso, longiusculo, lateribus antice rotundatis, basi 4-foveato, elytris cum thorace angulum formantibus, glabris, antennis articulis elongatis, tribus ultimis maioribus. Long. ·06.

Cambridge, Mass., in salt marshes. Very similar in form to S. clavipes, but at once known by the antennæ having only three enlarged joints. Entirely blackish piceous; head oval, smooth, glabrous; antennæ half as long as the body, slender, joints 3—7 equal, a little longer than wide; 8th one half longer and a little thicker, somewhat conical; 9th and 10th equal, a little longer, and nearly twice as thick as the 8th; 11th subacute. Thorax covered with erect black hair, a little wider than the head, longer than wide, narrowed in front, convex, slightly rounded on the sides anteriorly; base with four punctures. Elytra one half wider than the thorax, and forming a very obtuse angle with it; entirely glabrous, slightly foveate at base. Thighs moderately clavate.

22. S. fatuus, nigro-piceus, parce pubescens, thorace trapezoideo, antrorsum angustato, basi transversim impresso, elytris cum thorace angulum formantibus, convexis, basi valde foveatis, pedibus antennisque testaceis, his articulis tribus ultimis abrupte maioribus. Long. ·03.

One specimen, New York. I am unable to discover the acicular joint of the maxillary palpi in this species, but it is so similar to the other species of this division, that I am convinced that it properly belongs here and not in division (C.)

Blackish brown, finely and sparsely pubescent. Head rounded; palpi and base of antennæ testaceous; joints of the latter 3—8 rounded, subequal; 9th and 10th nearly twice as wide, transverse, 11th obtuse. Thorax not longer than wide, narrowed in front, slightly rounded on the sides, transversely impressed at the base. Elytra one half wider than the thorax, and forming with it a very obtuse angle, oval convex, deeply foveate at base, sparsely pubescent. Feet yellowish testaceous, thighs clavate.

23. S. misellus, testaceous, minus convexus, pubescens, thorax quadrato, lateribus antice rotundatis, basi medio transversim impresso, elytris basi impressis, antennis brevibus, articulis tribus ultimis rotundatis multa maioribus. Long. ·025.

Two specimens, from the upper part of Georgia, under pine bark. This species seems very similar to the European S. nanus (Schaum, Germ. Zeitschr. 5,471), but differs in color. Entirely pale rufo-testaceous, shining, finely pubescent. Head slightly transverse, rounded. Antennæ as long as the head and thorax, joints 3—8 equal, small, rounded; 9—11 twice as wide as the preceding, rounded, scarcely transverse. Thorax wider than the head, quadrate, rounded on the sides anteriorly, disc flattened, with a small transverse impression at the middle of the base, formed by the confluence of two punctures. Elytra flattened on the disc, wider than the thorax, ovate, very slightly punctulate, impressed at the base. Thighs a little thickened.

24. S. gravidus, piceus, pubescens, thorace antrorsum angustato, basi transversim impresso, elytris brevioribus rufescentibus, ovatis, basi foveatis, antennis gracilibus, articulis tribus ultimis rotundatis abrupte maioribus. Long. ·04.

Louisiana, Schaum, one specimen. Broader than the neighboring species, piceous pubescent. Head rounded; antennæ a little longer than the head and thorax, slender, joints 3—8 equal, not elongated, 9 and 10 more than twice as thick, globular, 11th a little longer, obtuse. Thorax wider than the head, trapezoidal, narrowed anteriorly, sides almost straight, base with a strong transverse impression. Elytra somewhat rufous, ovate, twice as wide as the base of the thorax and forming with it a very indistinct angle; moderately convex, base strongly foveate; thighs slightly clavate, tarsi testaceous.

25. S. fulvus, fusiformis, testaceo-rufus, pubescens, thorace longiusculo, trapezoideo, elytris basi vix impressis, antennis brevibus, articulis tribus ultimis rotundatis, abrupte maioribus. Long. ·03.

Upper part of Georgia, under pine bark. This species has very nearly the form of S. analis, but the thorax is longer.

Bright rufo-testaceous, covered with fine yellow hair. Head strongly pilose posteriorly. Antennæ as long as the head and thorax, three last joints equal, globular, twice as thick as the preceding ones, which are small and rounded. Thorax longer than wide, scarcely wider than the head, narrowed in front, sides straight, base not impressed. Elytra one half wider than the thorax, continuous in outline with it, regularly narrowed behind the middle, sparsely punctulate, slightly depressed on the disc, scarcely foveate at the base, thighs but slightly clavate.

B—c.

26. S. gracilis, elongatus rufo-testaceus, pebescens, capite angusto, thorace elongato, antrorsum subangustato, basi impresso, elytris elongato-ovalibus, convexis basi impressis, antennis articulis 5 ultimis sensim crassioribus. Long. ·06.

San Jose, California, near water, abundant. Reddish testaceous, finely pubescent. Head one half longer than wide, sides almost parallel; last joint of the palpi very distinct; antennæ as long as the head and thorax; in the female with the joints 3—6 subequal slightly rounded, 7—10 gradually larger, rounded, not transverse, 11th larger obtuse; in the male the 4th joint is twice as thick as the 3d and globular; the 5th narrow, the 6th triangular, strongly produced internally at the apex, 7—11 as in the female. Thorax a little wider than the head, one half longer than wide, gradually slightly narrowed in front, transversely impressed at the base. Elytra twice as wide as the thorax and forming an angle with it, elongate elliptical, convex, impunctured, foveate at the base. Legs slender, thighs subclavate.

C.

26. S. Zimmermani, testaceo-rufus, pubescens, thorace elongato, subcordato, elytris elongato-ovatis, punctatis, convexis, antennis articulis tribus ultimis abrupte maioribus. Long. ·06.

Schaum, Anal. Entom. 26.

One specimen, Habersham Co., Georgia; a slender yellowish red species, easily known by its slightly cordate elongate thorax and strongly punctured elytra.

The following species is unknown to me, and the description does not permit it to be referred with probability to any particular group. It is perhaps allied to S. subpunctatus Lec.

S. californicus, "piceus nitidus, subpubescens, capite triangulari, vertice excavato, thorace quadrato, lateribus subsinuatis, basi subimpresso, utrinque foveolato, elytris rufo-testaceis, apice subtruncatis, ore antennis pedibusque testaceis. Long. ⅞ lin."

Motschulsky. Bull. Mosc. 1845, 1, 48.

California.

BRATHINUS Lec.

Palpi maxillares filiformes, articulo ultimo longiore; labrum antice membraneum, late emarginatum; mandibulæ apice acuminatæ; antennæ elongatæ filiformes; tarsi posteriores articulis gradatim, brevioribus, indistinctis.

A remarkable apterous and glabrous genus, which except in the presence of eyes and in the form of the head and thorax bears a strong resemblance to Leptodirus, (Schmidt.)

The head is oval, strongly constricted behind, with the eyes moderately prominent; the front between the antennæ is concave; the vertex marked with two impressed lines converging behind; the labrum is transverse, hairy, apparently membranous anteriorly and broadly emarginate; the mandibles are acute at the apex; the ligula is emarginate, the labial palpi moderately short, three-jointed, the last joint a little longer; the mentum is transverse, scarcely trapezoidal; the head behind the mentum is deeply channeled, and bilobate. The maxillary palpi are long and slender; the first joint is small, the second long, slightly conical, the third one half as long as the second, cylindrical; the fourth a little longer than the second, very slightly fusiform, almost acute at the tip. Antennæ inserted under the margin of the front, two thirds as long as the body, almost filiform, first three joints shining, the others opaque; 2nd joint a little shorter than the 3rd, which is equal to the fourth and following ones. Mesosternum entirely simple; legs very long and slender, thighs not at all clavate; tibial spurs obsolete, tarsi short the four first joints of the anterior and intermediate tarsi distinct, short, almost equal, the first a little longer; the four first joints of the posterior feet gradually shorter, very indistinct, the fourth so closely united to the third and so short as to be scarcely visible. Thorax ovate, convex, not wider and scarcely larger than the head, narrowed behind, truncate at base and apex. Elytra not connate. ovate, large, convex, gradually dilated from the base for two thirds their length. then broadly rounded to the apex.

1. B. nitidus, piceus, nitidissimus, thorace pallidiore, antennis pedibusque testaceis, elytris glaberrimis, stria suturali, obsoleta notatis. Long. ·18.

Four specimens, Nova Scotia, Dr. Leidy. I am unable to discover any sexual character, one specimen appears to have the penultimate ventral segment of the abdomen a little produced over the anal segment in the middle.

2. B. varicornis, nigro-piceus, nitidissimus, elytris parce pilosis, pedibus testaceis, genubus nigris, antennis basi testaceis, medio nigris, articulis 3 ultimis albis. Long. ·15.

One specimen, Utica, J. C. Brevoort. The elytra are testaceous at the extreme apex; there is no sutural stria, but the suture is slightly elevated behind the middle, the setæ are very few and fine, they appear to be arranged in three or four lines. The antennæ are a little less slender than in the preceding species; the first four joints are dark testaceous, the four next are black; the three last are white, the extreme apex of the last joint is piceous.

Mr. Brevoort found this insect at the roots of some grass growing near water.

An Attempt at a Synopsis of the Genus GEOMYS Raf.

BY JOHN L. LE CONTE, M. D.

Having discovered in the museum of the Academy two nondescript species belonging to this curious genus of pouched rats, I thought that it might be useful, in making them known, to attempt also to bring together in a concise manner the characteristics of the species heretofore described.

The collection of the Academy is fortunately so rich in this genus that I have had an opportunity of inspecting more species than any author since Richardson first made known his numerous species.

I would further observe, that on account of the great rarity of specimens in the museums of continental Europe, the attempts in systematic works to reduce this genus to order have been by no means successful.

Rightly has Richardson preferred the older name of Rafinesque to the more recent ones of Kuhl, Lichtenstein and Say; Pseudostoma, the name proposed by the latter, and unfortunately employed in the superb work of Audubon and Bachman on North American mammalia, can in no case be adopted, because, as will be seen below, even if the early name of Rafinesque should be dismissed on account of any mental obliquity displayed in other matters, the name Saccophorus, proposed by Kuhl, has fully three years priority. For the same reason Ascomys, proposed by Lichtenstein, and adopted by Wagner in his supplement to Schreber, must also be rejected, although it antedates Say's name by one year.

There is among many scientific men a tendency to disregard every thing written by Rafinesque, on the plea that many of his names are hastily proposed, and founded upon false or imaginary characters. But surely his scientific zeal and laborious research deserve more attention, where their results are not obscured by his mental peculiarities. This view has induced me to coincide with Richardson in restoring to this group the generic name of Geomys.

Some persons disposed to be hypercritical might object, that as Rafinesque in reality established two genera, Geomys and Diplostoma, both referring to the same things, it is a matter of doubt which name should be adopted, and would therefore reject both. A simple reference to the original text will at once remove this objection. The imperfection of the specimens will account for the "no tail" of Diplostoma, but no stretch of imagination can excuse the "four toes to all the feet," and "two long jutting and furrowed front teeth above and beneath."

The characters of Geomys, on the contrary, are correct in every particular, and quite sufficient to separate the genus from all others known.

Misled by accounts of travellers, Richardson at first divided this group into those with external and those with internal cheek-pouches, reserving to the former the untenable name of Diplostoma. In his recent writings he has reviewed his former opinion, and now considers them as forming but one genus.

Much of the confusion in the species has arisen from a laudable desire to identify and retain the names of the older authors, even when unsupported by sufficient descriptions. Science has now, however, advanced so far, that it is time to get rid of all hypothetical synonyms by excluding definitely all that is too imperfect for use, even when sanctioned by great age or character. I have accordingly placed at the end of this paper, references to all such descriptions as seem to be unfit for quotations under any individual species, and would recommend that these having now been collected together, should be hereafter passed over in respectful silence.

The synonyms of this genus are as follows:—Geomys *Raf.* (1817): [Diplostoma *Raf.* (1817); Sacohophorus *Kuhl*, (1820); Ascomys *Lichtenstein*, (1822); Pseudostoma *Say*, (1823); Oryctomys, *Eydoux*, (1827); Thomomys *Wied.* (1839).

The two last names belong only to the second division of the genus, or these with smooth incisors, that character having been assumed as of generic value.

The following analytical table expresses the relation between all the species which I have had an opportunity of examining. Four species of Richardson belonging to group B. and G. castanops, the place of which is uncertain, have not been included, as I have not seen them, and can only take what has been written by others upon them.

A. Dentes primores superiores profunde sulcati.

a. Cauda-fere nuda.

1. Rufo-fuscus fere hispidus	G. hispidus *Lec.*
2. Supra rufus: primores superiores bicaniculati	G. canadensis *Lec.*
3. Supra plumbeus: primores superiores unisulcati	G. pineti *Raf.*

b. Cauda pilosa.

4. Supra nigricans, primores superiores unisulcati	G. mexicanus *Rich.*
5. Supra fuscescens, primores superiores bicanaliculati	G. oregonensis *Lec.*

B. Dentes primores non sulcati.

6. Supra rufescens, infra albicans, auribus brevibus	G. rufescens *Lec.*

A. Dentibus primoribus sulco profundo exaratis.

a. Cauda fere nuda.

1. G. hispidus, pilis concoloribus rufo-fuscis minus subtilibus tectus, cauda brevi nuda, auribus obsoletis.

Length from nose to root of tail, - - - - - -	11·5
Tail, - - - - - - - - - - - - -	3
Anterior foot to end of claw of third toe, - - - -	1·7
Posterior foot to end of claw of third toe, - - - -	1·9

One specimen, Mexico, Mr. Pease's collection. This species differs from all the others in having the fur very coarse and harsh, and entirely of a reddish brown color. Beneath it is slightly grayish, but the difference in color is by no means obvious. The ears are not at all prominent, being merely openings in the skin. The whiskers are as long as the head. The upper incisors are broken off, but enough remains to show that they were deeply grooved near the middle of the anterior surface; it is impossible to determine if there is a second submarginal groove. The tail is completely naked except at the root. The feet are precisely as in the other species of this division of the genus.

2. G. canadensis, supra rufus, infra flavicans, pilis subtilibus, basi saturate plumbeis, genis pedibusque albidis, cauda mediocri nuda, auribus brevibus, primoribus superioribus bisulcatis.

Length from nose to foot of tail, - - - - - -	6·7
" Tail, - - - - - - - - - - -	3·2
Anterior foot to end of third claw, - - - - -	1·3
Posterior foot to end of third claw, - - - - -	1·3

Ascomys canadensis Lichtenstein, Abhandl. Berl. Akad. 1822, p. 20, tab.; Brantz, Muis. 24; Wagner, Schreb. Saügeth. Suppl. 3, 383 ; Schinz, Syn. Mam. 2, 132.

Pseudostoma bursarius Say, Long's Exped. 1, 406, Godman, Nat. Hist. 2, 90, fig. 2 ; Harlan, Fauna, 153; Audubon and Bachman, Quadrupeds of America, 1, 332, pl. 44.

? *Mus saccatus* Mitchell, Med. Repos. 1821 ; 5, 89.

Saccophorus bursarius Kuhl, Beitrage, 66 ; Fischer, Syn. Mam. 304 ; Eydoux, Voy. Favorite, 1, 23.

One small specimen from the Bonaparte collection, locality not stated. According to Lichtenstein and Bachman it is found in Canada and in the upper and middle portion of the valley of the Mississippi.

The fur is fine and dense, not very lustrous ; it is deep plumbeous for two-thirds of its length ; above it is tipped with rufous, beneath with ochreous yellow ; the margin of the cheek pouches, the feet, and the posterior part of the fore legs are covered with whitish hair. The margin of the ears is short but very distinct ; the tail is almost entirely naked. The superior incisors have two grooves, the outer one broad and deep, nearer the external than the internal margin ; the inner one fine and deep, contiguous to the margin. The anterior claws are comparatively larger than in G. hispidus.

This species agrees accurately with the description and figure of Lichtenstein. Mus bursarius (*Shaw*,) which is referred to this species, is altogether doubtful, and ought to be omitted ; his description reads "cauda subnuda," while the figure represents it as decidedly hairy for its whole length ; the references to it as well as to other notices too imperfect for determination will be found at the end of this essay. Godman's figure is worthless, and both his account and Harlan's are copied from Say. Mitchell's account is extremely imperfect, and nothing but the locality (Lake Superior) induces me to refer it to this species. Wagner has misquoted Lichtenstein ; the citations from Brantz and Kuhl I have copied, as I have not had access to their original memoirs. Eydoux' remarks relate only to the teeth, and are applicable to other species.

3. G. **pineti**, mollipilosus, plumbeus, pilis inferioribus apice albidis, mento pedibusque albopilosis, cauda brevi nuda, auribus obseletis, primoribus, superioribus extra medium sulcatis.

Length from nose to root of tail, - - - - -	11·
" Tail, - . - . - - - -	2·5
Anterior foot to end of third claw, - - - -	1·4
Posterior foot to end of third claw, - - - -	1·5

Rafinesque, Am. Monthly Magazine, 1817, 2, 45.

Saccophorus? pineti Fischer, Syn. Mam. 305.

Pseudostoma floridana Aud. and Bachm. Quadrup. Am. 3 pl. 150, fig. 1.

One specimen from Florida in the Academy, and two from Alabama, from V. G. Audubon, Esq. ; also inhabits the lower part of Georgia, but suddenly disappears at the Savannah river, not extending into South Carolina. The fur is fine, dense and shining, dark plumbeous, on the back tipped with blackish brown, fading gradually on the sides into brown, and on the belly into whitish gray ; the upper lip is white ; the ears are scarcely perceptibly elevated ; the tail is naked, with only a few distant, short, grayish hairs. The upper incisors are deeply grooved just outside of the middle of the anterior face : the inner margin is not grooved. The smaller of the specimens sent me by the kindness of Mr. Audubon is more decidedly brown, so that the dark color is assumed only by the adult animal, or is dependent on season.

Rafinesque's description "murine color, tail entirely naked, shorter than the body," although short, is characteristic, and coupled with the locality, leaves no doubt whatever of the identify of the present species. There is a notice in Bewick's History of Quadrupeds, (New York ed., 1804, p. 525,) of a species from Georgia, by Dr. S. L. Mitchill, which from the locality may be identical with the one here described, but the description is worthless, and is moreover unaccompanied by any systematic name.

b. Cauda pilosa.

4. G. **mexicanus**, mollipilosus, saturate cinereus, supra nigro-tinctus, naso brunneo, cauda mediocri, pilosa, versus, apicem subnuda, auribus brevibus, primoribus superioribus medio profunde sulcatis.

Length from nose to foot of tail, - - - - - -	11·
" Tail, - - - - - - - - - -	5·
Fore foot to end of middle claw, - - - - - -	1·7
Hind foot to end of middle claw, - - - - - -	1·7

Ascomys mexicanus Lichtenstein, Abhandl. Berl. Akad. 1825, 113; Brantz, Muiz. 27; Wagner, Schreb. Saügth. Suppl. 3, 384; Schinz, Syn. Mam. 2, 133.

Saccophorus mexicanus Fischer, Richardson, Rep. Brit. Ass. 6, 156; Syn. Mam. 305; Eydoux, Voy. Favorite, 23, tab. 8.

One specimen, Mexico, Mr. J. Speakman. Fur very fine, shining, very dark cinereous, above tipped with black, beneath entirely cinereous; nose and whiskers brownish; breast and fore legs slightly tinted with brown. Ears short. Upper incisors with a very deep groove on the middle of the anterior surface. Feet thinly clothed with brownish hair. Tail covered with hair, which is very dense and long at the base, gradually becoming shorter and more scanty, leaving the tip almost naked.

This specimen agrees with Lichtenstein's and Wagner's descriptions, except that the tail is not "very thinly haired;" a lighter colored specimen mentioned in a marginal note by Wagner, had the "root of the tail surrounded by a very short band of hair; the remaining part naked, with verticillate scales." So that this species must vary considerably in the structure of the tail, or there are several closely allied species confounded under the same name. The extraordinary variations mentioned by Brantz, but not seen by any other author, would seem to give weight to the latter opinion; the varieties are thus described:—

"β. Castaneus, infra canescens, maculis gastræi duabus nigro-fuscis.

"γ. Saturate nigro-fuscus, maculis gastræi duabus irregularibus albis, canaliculo dent. prim. sup. magis laterali et externo."

I have omitted the citations from Hernandez and other old and unsystematic authors, because I see no utility in repeating continually barbarous names, which were in use before natural history assumed the form of a science.

5. G. **oregonensis**, mollipilosus, cinereus, castaneo-tinctus, dorso fuscescente, mento, cauda brevi, pedibusque albo-pilosis, auribus brevissimus, primoribus superioribus bisulcatis.

	Large.	Small.
Length from nose to root of tail, - . . -	10·8	7.7
" Tail, - - - - - - - -	2·3	2·3
Fore foot to end of third claw, - - -	1·5	1·2
Hind foot to end of third claw, - - -	1·2	1·

Two specimens marked "Pseudostoma bursarius, Columbia river, J. K. Townsend." Another from Mr. Audubon without locality, under the same name. Fur fine, shining, very dark cinereous, tipped with chestnut brown, becoming paler beneath; hair on the middle of the back tipped with fuscous; whiskers shorter than the head, whitish; chin with a large spot of whitish hair; feet densely clothed with white hair. Ears with a very short elevated margin. Upper incisors with a very deep groove at the middle, and a narrow but distinct one at the inner margin of the anterior face. Tail short, covered with whitish hair, becoming scanty at the tip. Claws of the posterior feet rather obtuse, and moderately flattened.

The hairy tail and white chin at once distinguish this species from G. canadensis. The color is much less red, and the middle of the back darker. It agrees very closely with the figure and description of Diplostoma? bulbivorum, Richardson, Fauna Bor. Am. 206, pl. 18B, (the latter marked by mistake D. Douglasii,) but that species has no grooves on the upper incisors.

B. Dentes primores sulco medio nullo.

6. G. rufescens, mollipilosus, saturate cinereus, supra rufo-tinctus, lateribus et infra albo-tinctus, oribus brevibus, cauda mediocri albo-pilosa, primoribus superioribus intus marginatis.

	Large.	Small.
Length from nose to root of tail, . . .	8·	5·4
" Tail, ...	1·3	2·
Fore foot to end of third claw, . . .	1.	·8
Hind foot to end of third claw, . . .	1·15	·9

Thomomys rufescens Weid, Nov. Act. Leop. Car. Akad. (1839) 19, 377; Schinz, Syn. Mam. 2, 134.

Geomys borealis Bachman, Journ. Ac. Nat. Sc. (1839) 8, 103; Richardson, Report British Ass. 2, 150; Schinz, Syn. Mam. 2, 136.

Geomys Townsendi Bachman, Journ. Ac. Nat. Sc. 8, 105; Richardson, Zool. of Beechey's Voy. 12; Schinz, Syn. Mam. 2, 137.

?*Oryctomys* (*Saccophorus*) *Bottæ* Eydoux, Voy. Favorite, (1837) 1, 2, 23.

Ascomys rufescens Wagner, Schreber Saügeth. Suppl. 3, 387.

Ascomys borealis Wagner, ibid. 391.

Ascomys Townsendi Wagner Wagner, ibid. 391.

Pseudostoma borealis, Aud. & Bachm. Quadr. Am. 3, pl. 142.

Saccophorus borealis Gray, Cat. Brit. Museum, 142.

"*Geomys bursarius* Richardson." Gray, ibid.

Two specimens from Columbia river, J. K. Townsend; the larger one labelled "Pseudostoma Townsendi (Rich.)," the smaller one "Pseudostoma borealis."

The fur is very fine and shining, dark cinereous, tipped on the back with rufous, on the sides and beneath with white; on the chin and feet the hair is almost entirely white. The whiskers are gray, and nearly as long as the head. The ears are short but distinct. The tail is covered with whitish hair; the upper incisors are slender, and marked with a very fine line at the inner margin of the anterior face.

This species (and probably all the others of this division,) has the inferior incisors much more slender than those above described; the fossorial claws of the anterior feet are also much smaller, so that even if the teeth were wanting no difficulty would ensue in the determination of the species.

The specimen of the Prince de Weid was found on the plains of the Missouri, but his description agrees so accurately with our specimens, that there can be no doubt of their identity. Dr. Bachman mentions his want of faith in the specific difference of the two specimens described by him, and gives them as distinct on the authority of Richardson. The latter remarks in Beechey's Voyage, that "G. Townsendi is distinguished from G. borealis by its longer tail." It must be observed, however, that in Dr. Bachman's measurements, the small specimen of G. borealis, five inches and a half in length, has the same length of tail as the large one, which is two inches longer. The specimen of G. Townsendi of the same size as the large G. borealis, had a tail nine lines longer, which is in exact proportion to the small specimen of G. borealis. The large specimen now before me, (which is labelled G. Townsendi,) has the precise proportions of the G. borealis described by Bachman, and is probably the identical one examined by him. On careful examination, I find that the tail does not taper regularly as in the other specimen, and, moreover, at its apex a distinct cicatrix is visible. I think we are therefore warranted in concluding that Geomys borealis is founded in a mistake.

I do not know what Mr. J. E. Gray means by quoting "*Geomys bursarius* Richardson, Report of British Association, 1836, 156," as a synonym of this species. Sir John Richardson, on page 9 of the Zoology of Beechey's Voyage, mentions that Mus bursarius of Shaw is a Geomys, and on page 12 describes G. borealis, thereby implying that he considers them as distinct species.

There is a third specimen in the museum of the Academy labelled "Pseudostoma Richardsonii, Columbia river, J. K. Townsend," which only differs from

8. D. ænescens, subelongatis, cylindricus, nigro-pilosellus, vix subtilissime cinereo-pubescens, thorace subtransverso, parce punctulato, lateribus et angulis posticis valde rotundatis, elytris dorso subdepressis sat dense grosse punctatis. Long. ·10.

San Diego; the male is a little narrower than the female.

A—b.

9. D. constrictus, elongatus, æneo-fuscus, subtiliter cinereo-pubescens, non pilosellus, thorace latitudine fere longiore, capite vix latiore ante medium angustato et paulo constricto, elytris subtilliter punctatis, antennis pedibusque rufis. Long. 09.

San Diego, rare. The sides of thorax are almost straight, and parallel, with the exception of the sinuosity produced by the anterior constriction.

A—c.

10. D. canescens, subelongatus subcylindricus, æneo-niger, irregulariter longius cinereo-pubescens, thorace transverso, lateribus valde rotundatis, serrulatis, confertim punctulato, vittis denudatis notato, elytris sat dense punctatis maculis denudatis pluribus ornatis. Long. ·15.

Mannerheim, Bull. Mosc. 1842, 248.

San Jose and San Francisco, very abundant. The description of Mannerheim is not at all characteristic. The male is narrower than the female; the inferior segment of the abdomen is short, and articulates with an anal segment.

11. D. rotundicollis, elongatus, subcylindricus, æneo-niger, subirregulariter cinereo-pubescens, thorace rotundato, lateribus serrulatis, elytris dorso subdepressis, sat dense grossius punctatis, maculis subdenudatis vix conspicuis notatis. Long. ·11.

San Jose, abundant; the male has the last ventral segment deeply excavated.

12. D. difficilis, elongatus, subcylindricus, æneo-niger, irregulariter cinereo-pubescens, thorace subtransverso, antrorsum angustato, lateribus serrulatis valde rotundatis, sat dense punctato, elytris sat dense punctatis, maculis indistinctis subdenutatis notatis. Long. ·11.

San Jose. Very similar to D. canescens, but the thorax is less transverse, and less thickly punctured; the spots on the elytra are less distinct; they form three transverse bands and a mark at the base. The male has the last ventral segment small and canaliculate; it articulates with an anal segment.

13. D. senilis, elongatus, dense cinereo-pubescens, æneo-piceus, thorace opaco punctulato, subquadrato, antrorsum subangustato, lateribus serrulatis vix rotundatis, elytris confertim subtilius punctatis. Long. ·13.

Fort Laramie, Nebraska Territory.

14. D. obscurellus, subelongatus, niger vix ænescens, subtilissime vix conspicue cinereo-pubescens, capite thoraceque alutaceis, parce punctatis, hoc rotundato, serrulato, convexo, elytris thorace latioribus, dorso vix depressis, sat dense grossius punctatis. Lon. ·09.

San Diego, one specimen. Resembles in form D. rotundicollis, but is smaller, and with the pubescens scarcely visible.

15. D. luteipes, æneus, elongatus, subcylindricus, longe inæqualiter cinereo-pubescens, thorace non transverso, convexo punctato, lateribus serrulatis rotundatis, antrorsum subangustato, elytris grossius distincte punctatis, dorso non depressis, maculis subdenudatis atris notatis, antennarum basi pedibusque rufo-flavis. Long. ·1.

One specimen, San Diego.

16. D. pusillus, æneo-niger, oblongo-elongatus, parcius longe cinereo-pubescens, thorace opaco, confertissime ruguloso, transverso, lateribus subser-

	Inches.	Lines.
Length from nose to root of tail, ...	11	0
" tail, ...	2	6
Fore foot to end of third claw, ...	1	0
Hind foot to end of third claw, ...	1	6

Richardson, Zool. Beechey's Voy. 13; Schinz, Syn. Mam. 2, 135.
Diplostoma? bulbivorum Richardson, Fauna Bor. Am. 1, 206.
Diplostoma Douglassii Richardson, ibid. pl. 18, B.
Geomys Douglassii Schinz, Syn. Mam. 2, 135.
Ascomys bulbivorus Wagner, l. c. 387.

Columbia river; ears obsolete. No one since Richardson appears to have observed this animal. Schinz has made one species of the description, and another of the figure of this animal: his description of the latter seems concocted from the text under Diplostoma? bulbivorum.

11. **G. castanops**, pallide flavo-brunneus, capite utrinque macula laterali magna castanea notato.

	Inches.
Length to base of tail, (approximate,) . . .	8
" tail, ...	2¾
Hand, (along the palm,)	1 3-12ths
Length of exposed part of middle anterior claw, .	¼
Hind foot (along sole) from heel, ...	1 4-12ths
Middle claw, ...	19-60ths

Pseudostoma castanops Baird, Stansbury's Exped. to Great Salt Lake, 313.

Found near Bent's Fort. Dr. Baird does not mention whether the tail is naked or hairy; the incisors are not described, probably because they were wanting, and we have therefore no data to determine the position of this species. Judging by the length of the exposed part of the anterior middle claw, it should belong to the first division.

A species with bisulcate superior incisors is mentioned by Richardson (Report British Ass. 5, 157,) under the name Geomys Drummondi, and by Wagner as Ascomys Drummondi, but as no description has yet been published, the species must of course be dropped from the books.

The following descriptions are too imperfect, or too faulty for reference.

Mus bursarius Shaw, Lin. Trans. 5, 227, pl. 8; Shaw, Gen. Zool. 2, 1, 100, pl. 138.

Mus bursarius Mitchill, Silliman's Journ. 4, 183.

Cricetus bursarius Desmarest, Mammalogie, 312, (copied from Mitchill and from Shaw.)

Cricetus bursarius F. Cuvier, Dict. Sc. Nat. 20, 257, (copied.)

Diplostoma fusca Rafinesque, Am. Month. Mag. 1817, 45.

Diplostoma alba Rafinesque, ibid.

Saccophorus? albus Fischer, Syn. Mam. 305.

Geomys cinerea Rafinesque, Am. Monthly Mag. 1817, 45.

Geomys bursarius Richardson, Fauna Bor. Am. 203; Zool. of Beechey's Voy. 9.

Catalogue of the MELYRIDES *of the United States, with Descriptions of New Species.*

By JOHN L. LE CONTE, M. D.

Div. 1. *Malachii.*

COLLOPS Er.

1. **C. bipunctatus** Er. Entomographien, 55; *Malachius bipunctatus* Say. Journ. Ac. Nat. Sci. 3, 185; Am. Entom. 3, pl. 48.

Missouri Territory and Northern Mexico.

October 12th.

Major JOHN LE CONTE in the Chair.

Letters were read

From Dr. Martyn Paine, dated New York, Oct. 5th, 1852, presenting the works announced this evening.

From the Librarian of the Manchester (England) Free Library and Museum, dated Sept. 6, 1852, acknowledging the receipt of copies of the late "Notice of the Academy by Dr. Ruschenberger."

From the Secretary of the Leeds Philosophical and Literary Society, dated Sept. 6, containing a similar acknowledgment.

October 19th.

Major JOHN LE CONTE in the Chair.

Letters were read

From the Secretary of the Trustees of the New York State Library, acknowledging the receipt of No. 5, Vol. 6, of the Proceedings.

From the Secretary of the Theological Society, of London, dated Oct. 17th, 1852, acknowledging the receipt of the Proceedings and Journal of the Academy.

From the Secretary of the "Naturwissenschaftliche Verein in Hamburg," dated May 28th, 1852, transmitting the volumes announced this evening, and requesting an exchange of publications.

From M. Lacordaire, Secretary of the Société Royale des Sci. de Liege," dated 9th July, 1852, transmitting the memoirs of that Society, and also requesting an exchange of publications.

From Dr. T. I. Kirkbride, Superintendent of the Pennsylvania Hospital for the Insane, dated Oct. 15, 1852, requesting the loan or gift of duplicate objects of Natural History for the Museum of that Institution. Referred to the Curators with power to act.

Dr. Hallowell presented a paper designed for publication in the Proceedings, describing some new Reptiles inhabiting North America. Referred to Dr. Leidy, Dr. Le Conte and Dr. Woodhouse.

Dr. Hallowell presented a second paper, also for publication, entitled, "Descriptions of new species of Reptiles from Oregon Territory." Referred to the same Committee.

Mr. Cassin presented a "Catalogue of the Halcyonidæ in the Collection of the Acad. Nat. Sci. Philadelphia," which being intended for publication in the Proceedings, was referred to the following Committee: Dr. Wilson, Dr. Bridges and Dr. Woodhouse.

Mr. Cassin presented another paper intended for publication, describing new species of Birds, specimens of which are in the Collection of the Acad. Nat. Sci. of Philadelphia. Referred to same Committee.

13. C. **punctulatus**, niger subtilius pubescens, et parcius nigro pilosellus, capite confertim subtilius punctato, thorace parcius punctulato margine laterali tenui testaceo, elytris alutaceis, subtilius punctatis, margine ad medium latiore, sutura antice dilatata apiceque flavis, tibiis tarsisque testaceis, femoribus nigris. Long. ·12.

One female, Missouri Territory; the first joint of the antennæ and half of the second are pale, the others are black.

14. C. **histrio** Er. Entom. 59; Mannerheim, Bull. Mosc. 1843, 247.

California, unknown to me. This species is very similar to 4-maculatus, but the thorax is densely punctulate, and the posterior spot of the elytra reaches the margin near the apex.

MALACHIUS Fabr. (emend. Er.)

1. M. **æneus** Fabr. Syst. El. 1, 306; Er. Entom. 66.

Cambridge, Mass., Dr. Harris. Undoubtedly introduced, but apparently naturalized, as one or two specimens occur every year. For the synonyms see Erichson as cited above. The references relate only to the occurrence of the insect in Europe, and therefore should have no place in our fauna.

2. M. **auritus**, cyaneo-niger, vix cinereo-pubescens, labri margine clypeoque flavis, thorace vix transverso, angulis omnibus rotundatis, lateribus anguste rubris, elytris subtiliter scabris, linea vix elevata notatis. Long. ·23.

San Francisco and San Jose, California. The male has the tips of the elytra obliquely truncate and split, the inner part rising over the outer; in the female the tip is not distorted, and is of a brilliant red color. The maxillary palpi are short and subacute; the abdomen is entirely horny beneath.

3. M. **longiceps**, niger nitidus, breviter nigro-pilosellus, parce subtiliter pubescens, capite elongato, thorace lateribus sanguineis rectis antice rotundatis, elytris vix rugosis sutura apiceque sanguineis. Long. ·15.

A very singular species from San Diego, California. The head is twice as long as wide, the antennæ are inserted in front of the eyes, but not at the tip; they are strongly serrate in the male, and but moderately so in the female, the last joint of the maxillary palpi is longer than the preceding, and acute. The thorax is not wider than long. The elytra are dilated behind, and the tip is entire in both sexes. The basal joints of the abdomen are membraneous in the middle of their ventral surface. The anterior tarsi of the male have the two basal joints slightly dilated. In this species the clypeus has a small membranous spot anteriorly, similar to the '*rhinarium*' of some species of Necrophorus.

ANTHOCOMUS *Er.*

1. A. **Erichsonii**. "*A. otiosus* Say." Er. Entom. 99.

This species is unknown to me, it differs from the next species by having the apex of the elytra of the male compressed; the anterior tarsi are not dilated.

2. A. **otiosus**. *Malachius nigripennis*‡Say, Journ. Ac. 3, 184; *Malachius otiosus* Say, Am. Ent. 3, pl. 48. *Anthocomus atripennis* Er. 108 (var. with immaculate thorax.)

Middle and Southern States. The male of this, as of all the following species has the second joint of the anterior tarsi enlarged and produced above the third and fourth joints; the tip of the elytra is not compressed or distorted. The anterior feet are usually yellow.

3. A. **rufifrons**. *Malachius rufifrons*‡Dej. Cat.

Georgia; from a specimen too mutilated for description this species seems very similar to the last mentioned, but differs in the head being entirely rufous.

4. A. **lateralis**, niger, subtilissime cinereo-pubescens, clypeo rufo,

thorace transverso, lateribus et angulis valde rotundatis subtiliter punctulato, rufo, vitta lata nigra notato, elytris vix rugosis. Long. ·10.

Pennsylvania. Very similar to A. otiosus, but the thorax, besides being finely punctulate, has the posterior angles more broadly margined.

5. A. flavilabris. *Malachius flavilabris* Say, Journ. Ac. Nat. Sc. 5, 169. *Mal. cæruleus* Randall, Bost. Journ. Nat. Hist. 2, 16.

One specimen, Vermont. Prof. C. B. Adams.

6. A. circumscriptus Er. Entom. 107. *Malachius circumscriptus* Say, Journ. Ac. Nat. Sc. 3, 185.

Southern States, not rare.

7. A cinctus, testaceus, supra niger, subtiliter cinereo-pubescens, parce nigro-pilosellus, ore thoracis margine tenui, elytrorum basi margineque omni flavis, postpectore nigro. Long. ·12.

Colorado River, California. The antennæ are piceous, with the base pale; the thorax is transverse and rounded on the sides as in the other species. The pygidium is black, margined with testaceous; the abdomen has two rows of piceous spots, the posterior tibiæ are piceous.

8. A. difficilis, niger, ore flavo, thorace lateribus tenuiter flavis, elytris margine suturali et externo usque ad medium, apiceque flavis, pedibus basi flavis. Long. ·13.

Colorado River. This species is so similar to the last, in every respect, except color, that I hesitate to consider it distinct; the pubescence if it ever had any has been entirely removed. Only a single specimen was found.

9. A. lobatus, flavus, parce cinereo-pubescens, capite postice piceo, thorace maculis 3 nigris confluentibus notato, scutello nigro, elytris nigris margine omni, basi suturaque late flavis, subtus niger pedibus abdominisque apice flavis. Long. ·07.

A very pretty little species from the Colorado River, California. The antennæ are piceous, with the under part of the basal joints pale. A variety has the head black, with only the clypeus pale; the spots of the thorax so large as to leave only a narrow yellow margin; the sutural yellow margin of the elytra not reaching the scutel, and the posterior feet dusky. It was found at Vallecitas, on the western edge of the desert of the Colorado.

10. A. terminalis Er. Entom. 108. *Malachius terminalis* Say, Journ. Ac. Nat. Sc. 5, 71.

Middle and Southern States.

11. A. scincetus Er. Entom. 109. *Malachius scincetus* Say, Journ. Ac. Nat. Sc. 5, 170.

Southern States. Inasmuch as Erichson has adopted this specific name, I do not venture to change it. I fear, however, that the German philosopher has been as much at a loss as myself to give any meaning to it. It certainly cannot be considered as a 'vox euphonia,' such as are frequently invented by those who rejoice in a limited amount of classic lore. The name given by Dejean (*Malachius lividus*) is certainly infinitely better.

This species varies in the color of the thorax, which is sometimes entirely black; usually it is yellow with a broad black vitta.

12. A. granularis Er. Entom. 112.

South Carolina, Dr. Zimmerman.

13. A. basalis, niger, glaber, nitidus, clypeo pedibusque flavis, thorac subtilissime punctulato, basi, flavo-marginato, elytris postice latioribus, vi rugosis. Long. 06.

One specimen, Colorado River, California.

14. A. melanopterus Er. Entom. 110.

This species is unknown to me.

EBÆUS Er.

1. E. morulus, niger nitidus, parce pubescens, thorace subtransverso, lateribus et basi rotundato, elytris impunctatis, abdomine brevioribus, abdominis segmentis flavo-marginatis, clypeo pedibusque anterioribus testaceis. Long. ·12.

One specimen, Missouri Territory. The antennæ are piceous, with the inferior margin pale.

2. E. apicalis Er. Entom. 119. *Malachius apicialis* Say, Journ. Ac. Nat. Sc. 5, 170.

Southern States, very abundant; the elytra of the female are entirely black. It is the *Malachius melanopterus* of Dejean's Catalogue.

3. E. bicolor, niger, tenuiter cinereo-pubescens, capite, thorace antennarum basi pedibusque flavis, elytris subtiliter alutaceis. Long. ·07.

One male, from Georgia, with the tip of the elytra yellow and hamate as in the preceding species, from which it differs principally by its yellow head.

4. E. pusillus, *Malachius pusillus* Say, Journ. Ac. Nat. Sc. 5, 170.

Southern States; the male has the tip of the elytra yellow and hamate; the female resembles very much Anthocomus granularis Er., but is distinguished at once by its bluish color and densely alutaceous elytra.

5. E. oblitus, niger, vix cyanescens, tenuiter cinereo-pubescens, thorace convexo, subtilissime punctulato, subtransverso, lateribus et basi rotundato, postice subangustato, elytris convexis subtilissime punctatis, antennarum basi, pedibusque flavis. Long. ·07.

Middle and Southern States. Differs from the preceding by its less transverse more convex, and finely punctured thorax; the male, as usual, has the tip of the elytra pale colored and hamate; in the female the elytra are much dilated behind.

6. E. submarginatus, longiusculus, æneo-niger, tenuiter pubescens, thorace subtiliter alutaceo non transverso, versus basin angustato, basi refundata obsolete rufescente, elytris vix dilatatis depressiusculis, obsolete rugosis, abdomine brevioribus. Long. ·06.

One specimen, Colorado River, California. The antennæ and tibiæ are testaceous at base.

7. E. minutus, *Malachius minutus* Mels. Pr. Ac. Nat. Sc. 2, 305.

Pennsylvania. This species is unknown to me. It is described as being black, with the feet antepectus, head and thorax rufous, the latter with a dusky vitta. It may be an Anthocomus, but from its small size, the reference to this genus is probably correct.

ACLETUS Lec.

Antennæ 11-articulatæ, maris pectinatæ. Clypeus brevissimus, indistinctus. Labrum parvum transversum, breve. Palpi maxillares breves, articulo 4^{to} apice acuminato. Tarsi antici maris articulo 1^{mo} inferno, 2^{do} obliquo.

I have only males of this genus, which differ from Ebæus by the first joint of the anterior tarsi being inferior, and almost indistinct; the tip of the elytra is not impressed; the ventral segments of the abdomen are entirely corneous. The insect has somewhat the appearance of Malthinus, but with longer elytra.

1. A. nigrellus, niger, nitidus, vix pubescens, thorace valde transverso, capite vix latiore, angulis omnibus rotundatis, posticis, explanatis, elytris thorace paulo latioribus, subtilissime vix rugosis. Long. ·11.

Two male from Eagle Harbor, Lake Superior. The posterior tibiæ are slightly bent inwards, and the joints of the antennæ after the 4th, are triangular, with the internal angle much prolonged, so that the organs become tolerably strongly pectinate.

MICROLIPUS Lec.

Antennæ 11-articulatæ, elongatæ, subserratæ. Palpi maxillares, breves, crassi, articulo 4to conico. Labrum quadratum, apice subrotundatum. Clypeus brevis, coriaceus. Tarsi antici articulis 4-subtus breviter lobatis.

The body is elongate and linear, the head as broad as the thorax, very much narrowed in front of the eyes, which are prominent; the tip of the elytra is simple in both sexes; the head of the male is slightly trifoveate; the ventral segments of the abdomen are entirely corneous.

1. M. laticeps, elongatus, æneo-niger, tenuissime cinereo-pubescens clypeo flavo, thorace vix transverso, angulis rotundatis, margine tenui flavo, elytris vix rugosis, apice rotundatis anguste flavis. Long. ·13.

San Diego, California; the palpi and antennæ are black, the under part of the three basal joints of the latter pale. The pale margin of the thorax is interrupted at the apex in a specimen from San Francisco, which also has the thorax a little narrowed behind, and the posterior angles less rounded than in the San Diego specimens. It may perhaps be a different species, but a greater number of specimens will be wanted to determine the question.

ATELESTUS Er.

1. A. basalis, opacus, sanguineus, brevissime pubescens, capite fusco, thorace latitudine longiore, postice angustato basi producto et emarginato, elytris depressis, thorace longioribus, atris basi sanguineo-marginatis. Long. ·12.

San Diego, California, under sea weeds. The red of the base of the elytra extends on the outer margin almost to the middle. The male of this species, as well as of both the following, has the 2d joint of the anterior tarsi obliquely produced above (as in our species of Anthocomus) as far as the end of the 3rd joint, which is also elongated. In this character it differs remarkably from Erichson's Atelestus hemipterus, the male of which has the *first* joint of the anterior tarsi produced obliquely *under* the second. According to Erichson's principles of division, our species should form a separate genus, but as I have been able, by this description, to find no difference except this sexual one, I do not feel justified in giving a new generic name to the species here described.

2. A. abdominalis, sanguineus, opacus, brevissime pubescens, thorace latitudine longiore, postice angustato, basi producto vix emarginato, elytris depressis, thorace longioribus, atris, abdomine toto atro. Long. ·12.

San Diego, with the preceding; the scutellum is red, but the elytra are immaculate.

3 A. collaris, niger, opacus, brevissime pubescens, thorace latitudine vix breviore, rotundato, sanguineo basi medio late emarginato, elytris thorace brevioribus, scabris. Long. ·12.

San Francisco? One male sent by Mr. Pease. In the two preceding species the elytra are gradually widened from the base, and lie together at the suture for the greater part of their length. In this species they are not widened on the sides, and commence to separate immediately behind the scutellum, which is black.

Div. 2. *Dasytini.*

DASYTES Fabr.

Although differing much in the form of the body, there appears to be no natural mode of separating the following species into genera; the two last species, which are the only ones from the eastern part of the continent, do recede remarkably from the others in the absence of the appendages between the claws of the tarsi. There are however European species similar to them, which are retained by Redtenbacher, in the genus Dasytes. We have not in North America the intermediate forms having one claw simple and the other with an

appendage. The following scheme may aid the student in determining the species, which in the western part of the continent will become quite numerous and very difficult.

A. Ungues omnes appendiculati.
  a. Thorace transverso, marginibus integris, Sp. 1—8.
  b. Thorace elongato, marginibus integris, Sp. 9.
  c. Thorace lateribus serrulatis, Sp. 10—17.
B. Ungues non appendiculati, Sp. 18—19.

A—a.

1. D. **fuscus**, fusco-subæneus, dense fusco-pubescens, obesus, thorace longitudine duplo latiore, lateribus valde rotundatis, elytris convexis, subtilius sat dense punctulatis, pedibus rufo-piceis. Long. ·14.

Vallecitas, California, May. The male has the thorax wider than the elytra, which are a little narrowed posteriorly.

2. D. **suturalis**, oblongus nigro-æneus, subtiliter cinereo-pubescens, dense nigro-pilosellus, thorace latitudine paulo breviore, lateribus paulo rotundatis, angulis posticis obtusis, elytris confertim punctulatis et subrugosis, sutura lateribusque densius cinereo pubescentibus. Long. ·13—·15.

San Diego, California. In the male the elytra are narrower than the thorax, and narrowed posteriorly.

3. D. **conformis**, nigro-æneus, subtiliter cinereo-pubescens, dense nigro-pilosellus, oblongus, thorace latitudine breviore, lateribus et angulis posticis valde rotundatis, elytris confertim punctulatis et subrugosis, sutura sæpius densius cinereo-pubescente. Long. ·12—·14.

San Diego. Very similar to the last, and only differing in the form of the thorax; the male has the elytra slightly narrowed posteriorly.

4. D. **sordidus**, oblongus, convexus, æneo-piceus, longius sordide pubescens, et nigro-pilosellus, thorace latitudine breviore, parce subtiliter punctulato, lateribus rotundatis, elytris sat dense minus subtiliter punctatis. Long. ·14.

San Diego abundant; distinguished by the equally distributed coarse pubescence and longer more numerous erect black hairs. The male is a little narrower than the female.

5. D. **griseus**, oblongus, convexus, æneo-piceus, densius longe sordide pubescens, non pilosellus, thorace latitudine breviore, punctulato, lateribus rotundatis, elytris sat dense grossius punctatis, pedibus antennisque rufis. Long. ·1.

One specimen, California, (San Diego?). The joints of the antennæ are not transverse, and from the 4th—10th are equal in size. The preceding species have the antennæ serrate only from the 5th joint.

6. D. **brevicornis**, oblongo-cylindricus, æneo-piceus, dense subtiliter longe cinereo-pubescens, non pilosellus, thorace latitudine breviore, punctulato, lateribus valde rotundatis, elytris sat dense grossius punctatis, pedibus antennisque rufis, his articulis a 4to subtransversis. Long. ·1.

San Diego. A little narrower than D. griseus, and with more rounded thorax. The antennæ are shorter, the joints from the 4th are transverse, and the 7th and 8th are a little narrower than those which precede them.

7. D. **squalidus**, oblongo-elongatus, æneo-piceus, subtiliter longe cinereo-pubescens, nigro-pilosellus, thorace transverso parce punctulato, lateribus paulo rotundatus, angulis posticis obtusis, elytris sat dense grossius punctatis, dorso leviter depressis. Long. ·09.

San Diego, two specimens. Resembles most nearly D. suturalis, but is smaller; the posterior angles of the thorax are less distinct, and the elytra less finely punctured. As in D. suturalis, the 4th joint of the antennæ is scarcely dilated.

8. D. **aenescens**, subelongatus, cylindricus, nigro-pilosellus, vix subtilissime cinereo-pubescens, thorace subtransverso, parce punctulato, lateribus et angulis posticis valde rotundatis, elytris dorso subdepressis sat dense grosse punctatis. Long. ·10.

San Diego; the male is a little narrower than the female.

A—b.

9. D. **constrictus**, elongatus, æneo-fuscus, subtiliter cinereo-pubescens, non pilosellus, thorace latitudine fere longiore, capite vix latiore ante medium angustato et paulo constricto, elytris subtilliter punctatis, antennis pedibusque rufis. Long. 09.

San Diego, rare. The sides of thorax are almost straight, and parallel, with the exception of the sinuosity produced by the anterior constriction.

A—c.

10. D. **canescens**, subelongatus subcylindricus, æneo-niger, irregulariter longius cinereo-pubescens, thorace transverso, lateribus valde rotundatis, serrulatis, confertim punctulato, vittis denudatis notato, elytris sat dense punctatis maculis denudatis pluribus ornatis. Long. ·15.

Mannerheim, Bull. Mosc. 1842, 248.

San Jose and San Francisco, very abundant. The description of Mannerheim is not at all characteristic. The male is narrower than the female; the inferior segment of the abdomen is short, and articulates with an anal segment.

11. D. **rotundicollis**, elongatus, subcylindricus, æneo-niger, subirregulariter cinereo-pubescens, thorace rotundato, lateribus serrulatis, elytris dorso subdepressis, sat dense grossius punctatis, maculis subdenudatis vix conspicuis notatis. Long. ·11.

San Jose, abundant; the male has the last ventral segment deeply excavated.

12. D. **difficilis**, elongatus, subcylindricus, æneo-niger, irregulariter cinereo-pubescens, thorace subtransverso, antrorsum angustato, lateribus serrulatis valde rotundatis, sat dense punctato, elytris sat dense punctatis, maculis indistinctis subdenutatis notatis. Long. ·11.

San Jose. Very similar to D. canescens, but the thorax is less transverse, and less thickly punctured; the spots on the elytra are less distinct; they form three transverse bands and a mark at the base. The male has the last ventral segment small and canaliculate; it articulates with an anal segment.

13. D. **senilis**, elongatus, dense cinereo-pubescens, æneo-piceus, thorace opaco punctulato, subquadrato, antrorsum subangustato, lateribus serrulatis vix rotundatis, elytris confertim subtilius punctatis. Long. ·13.

Fort Laramie, Nebraska Territory.

14. D. **obscurellus**, subelongatus, niger vix ænescens, subtilissime vix conspicue cinereo-pubescens, capite thoraceque alutaceis, parce punctatis, hoc rotundato, serrulato, convexo, elytris thorace latioribus, dorso vix depressis, sat dense grossius punctatis. Lon. ·09.

San Diego, one specimen. Resembles in form D. rotundicollis, but is smaller, and with the pubescens scarcely visible.

15. D. **luteipes**, æneus, elongatus, subcylindricus, longe inæqualiter cinereo-pubescens, thorace non transverso, convexo punctato, lateribus serrulatis rotundatis, antrorsum subangustato, elytris grossius distincte punctatis, dorso non depressis, maculis subdenudatis atris notatis, antennarum basi pedibusque rufo-flavis. Long. ·1.

One specimen, San Diego.

16. D. **pusillus**, æneo-niger, oblongo-elongatus, parcius longe cinereo-pubescens, thorace opaco, confertissime ruguloso, transverso, lateribus subser-

rulatis rotundatis, elytris dorso convexis sat dense punctatis antennarum basi pedibusque rufis. Long. ·07.

One specimen, San Diego.

17. D. **erythropus**, niger, vix æneus, oblongo-elongatis, parcius cinereo-pubescens, thorace opaco, confertissime ruguloso, latitudine fere duplo breviore, lateribus vix serrulatis rotundatis, elytris dorso subdepressis, subtilius punctatis, antennarum basi pedibusque rufis. Long. ·09

New Mexico; brought also from the boundary of Mexico, by Col. Graham. This species is extremely similar to D. pusillus; the color is however less bronzed, the elytra are less convex and less coarsely punctured. The male has the last ventral segment slightly foveate and emarginate; the anal segment broad and short.

B.

18. D. **basalis**, oblongo-elongatus, ater vix pubescens, capite thoraceque opacis valde punctatis, hoc transverso, lateribus subrotundatis marginatis serratis, elytris cribratim punctatis, valde marginatis, basi maculaque ante apicem rufis. Long. ·13.

Georgia, very rare, I have adopted the name under which this species appears in Dejean's Catalogue.

19. D. **cribratus**, æneo-niger subtilissime parce pubescens, oblongo-elongatus, capite thoraceque valde punctatis hoc transverso, lateribus subrotundatis marginatis serratis, elytris valde marginatis cribratim punctatis. Long. ·16.

South Carolina and Pennsylvania, Dr. Zimmerman.

I have not been able to identify the two following California species:

D. **laticollis** Mannerheim, Bull. Mosc. 1843, 247.

D. **parvicollis** Mannerheim, ibid, 248.

Dr. Fisher offered his resignation as a member of the Committee on the proposed enlargement of the Hall of the Academy, which was accepted, and on motion Dr. Zantzinger was appointed to fill the vacancy.

ELECTIONS.

Dr. Francis V. Greene, Mr. R. E. Griffith, Prof. James C. Booth, and Dr. Mark W. Collet, all of this city, were elected *Members* of the Academy,

And Thomas Antisell, M. D., of New York, M. H. Perloy, Esq., of St. Johns, N. B., and the Right Rev. Alonzo Potter, D. D., of Pennsylvania, were elected *Correspondents.*

October 5th.

Vice President Bridges in the Chair.

Dr. Leidy presented a paper from Prof. S. F. Baird and Mr. Charles Girard, intended for publication in the Proceedings, entitled "Descriptions of new species of Reptiles, collected by the U. S. Exploring Expedition, Captain Wilkes: Part I., including the species from the West coast of America." Referred to Dr. Hallowell, Dr. LeConte and Dr. Leidy.

October 12*th*.

Major JOHN LE CONTE in the Chair.

Letters were read

From Dr. Martyn Paine, dated New York, Oct. 5th, 1852, presenting the works announced this evening.

From the Librarian of the Manchester (England) Free Library and Museum, dated Sept. 6, 1852, acknowledging the receipt of copies of the late "Notice of the Academy by Dr. Ruschenberger."

From the Secretary of the Leeds Philosophical and Literary Society, dated Sept. 6, containing a similar acknowledgment.

October 19*th*.

Major JOHN LE CONTE in the Chair.

Letters were read

From the Secretary of the Trustees of the New York State Library, acknowledging the receipt of No. 5, Vol. 6, of the Proceedings.

From the Secretary of the Theological Society, of London, dated Oct. 17th, 1852, acknowledging the receipt of the Proceedings and Journal of the Academy.

From the Secretary of the "Naturwissenschaftliche Verein in Hamburg," dated May 28th, 1852, transmitting the volumes announced this evening, and requesting an exchange of publications.

From M. Lacordaire, Secretary of the Société Royale des Sci. de Liege," dated 9th July, 1852, transmitting the memoirs of that Society, and also requesting an exchange of publications.

From Dr. T. I. Kirkbride, Superintendent of the Pennsylvania Hospital for the Insane, dated Oct. 15, 1852, requesting the loan or gift of duplicate objects of Natural History for the Museum of that Institution. Referred to the Curators with power to act.

Dr. Hallowell presented a paper designed for publication in the Proceedings, describing some new Reptiles inhabiting North America. Referred to Dr. Leidy, Dr. Le Conte and Dr. Woodhouse.

Dr. Hallowell presented a second paper, also for publication, entitled, "Descriptions of new species of Reptiles from Oregon Territory." Referred to the same Committee.

Mr. Cassin presented a "Catalogue of the Halcyonidæ in the Collection of the Acad. Nat. Sci. Philadelphia," which being intended for publication in the Proceedings, was referred to the following Committee: Dr. Wilson, Dr. Bridges and Dr. Woodhouse.

Mr. Cassin presented another paper intended for publication, describing new species of Birds, specimens of which are in the Collection of the Acad. Nat. Sci. of Philadelphia. Referred to same Committee.

October 26th.

Vice-President BRIDGES in the Chair.

e Committee to which was referred the following papers by Prof. and Mr. Charles Girard, reported in favor of publication in the edings:

teristics of some new Reptiles in the Museum of the Smithsonian Institution.

BY SPENCER F. BAIRD AND CHARLES GIRARD.

part. Containing the Batrachians in the collection made by J. H. k, Esq., under Col. J. D. Graham, on the United States and Mexican ndary.

LYSTOMA PROSERPINE, B. and G. Head oval, longer than broad. Limbs es well developed. Posterior legs a little shorter than the anterior ones. mewhat compressed, tapering; shorter than the body and head together. ches in length from the end of the mouth to the tip of the tail: head one- of this length. Body nearly cylindrical, more so in the male than in the .

species is related to *A. mavortium*, which it resembles in coloring, but rs from the latter in having a proportionally longer head, and longer limbs es. The tail, however, is shorter.

immature specimens were obtained at Salado, four miles from San Antonio, Specimens nearly full grown were collected by R. H. Kern, Esq., of elphia, on the route from Montgomery, Mexico.

A AREOLATA, B. and G. Head very large, sub-elliptical; snout prominent, s situated half way between its tips and the anterior rim of the eyes, which portionally large. The tympanum is spherical, and of medium size; its portion is yellowish-white, whilst its periphery is black. The body is short and stout; the limbs well developed; the fingers and toes very ithout being slender. The ground color of the body and head is yellowish- marked with dark brown. Besides there are from thirty to fifty brown , margined with a yellowish line. The upper part of the limbs is of the olor as the body, but instead of areolæ, transverse bands of brown are the hind ones. The lower part of the head and body is yellowish, with lusky spots along the margin of the lower jaw, and under the neck.

ecimen three inches and a half long was found at Indianola, and a small the Rio San Pedro of the Gila.

PUNCTATUS, B. and G. Head short, sub-triangular; upper surface even. ches in total length. Body and upper portion of the limbs covered with red tubercles. Color of a uniform yellowish-green or yellowish-brown, red with red on the head, on the upper part of the body and limbs. Be- ellowish, with occasional minute dots under the head and on the breast. on the Rio San Pedro of the Rio Grande Del Norte.

GRANULOSUS, B. and G. This species is closely related to the preceding, hich it can be distinguished by a larger and more triangular head, whose urface presents a widely open groove, extending from the occiput to the where it terminates in a very narrow channel. The upper periphery of its is thus surrounded with a carina which extends from the eyes to the below. The body is covered with very conspicuous tubercles. The re rather slender. The ground color is brown, maculated or marbled with black patches and dots. Unicolor beneath.

specimen was collected on the route between Indianola and San Antonio,

Descriptions of new species of Reptiles, collected by the U. S. Exploring Expedition under the command of Capt. CHARLES WILKES, U. S. N.

First part.—Including the species from the Western coast of America.

By SPENCER F. BAIRD and CHARLES GIRARD.

AMBLYSTOMA TENEBROSUM, B. and G. The single specimen of this species brought home by the Expedition is five inches and a half in length, of which the tapering and most compressed tail occupies two and a quarter. The head is subelliptical, and longer than broad. The limbs are proportionally stout; the third finger is the longest. The color (as preserved in alcohol) is uniformly chesnut brown, marbled with a much deeper (nearly black) brown.

This species is related to *A. macrodactylum*, Baird, but differs from it in the structure of the hind feet, in which the fourth finger is the longest; also in the vomerine band of teeth, which, in *A. macrodactylum* forms a curve convex forwards, on the middle region of the palate, while in *A. tenebrosum*, the convexity of the same curve is directed backwards.

From Oregon.

RANA AURORA, B. and G. The general aspect of this species differs greatly from that of all its congeners in North America. The length of the body and head together is three inches and a half, the head forming nearly one third of this length. The head itself is pyramidal, pointed, the nostrils situated midway between the anterior rim of the eye and the tip of the snout. Eyes of medium size, anterior limbs short; fingers rather long and slender. The body is orange red, with here and there black irregular patches.

From Puget Sound.

RANA DRAYTONII, B. and G. This species resembles very much the preceding in its external appearance. It differs, however, in having a truncated snout, the nostrils consequently nearer to its tip than to the eyes. The eyes themselves and tympanum are proportionally larger than in *R. aurora*, the limbs more developed and the tongue much narrower. The ground color is olivaceous green, maculated with black on the upper region of the body and limbs, whilst underneath the hue is unicolor, except sometimes under the head, breast and hind legs, where the brown and white mingle in circular dots.

Specimens were collected at San Francisco, California, and on Columbia River by Mr. Drayton himself, to whom we take pleasure in dedicating this species.

HYLA REGILLA, B. and G. This is a species of medium size; the largest individual observed measuring one inch and a half from the nose to the posterior extremity of the body, the head itself occupying about half of this length. The hind legs are long and slender, the web extending only to half the length of the longest toe; fingers comparatively long. The general color is green above, turning to orange yellow along the sides of the head, abdomen and legs. Two oblong, brownish black spots exist on the occiput, from which two vittæ (one pair) of the same black color extend along the dorsal region; a similar band passes from the tip of the nose, across the eye and tympanum, and along the abdomen, when it is interrupted and forms a series of black and irregular small spots. In the immature state, green is the prevailing color; a few black spots being present along the whitish abdomen.

Specimens of this species were collected on Sacramento River, in Oregon and Puget Sound. Drawings from life were made on the spot by Mr. Drayton.

BUFO BOREAS, B. and G. Upper surface of head flat, nearly even, the orbits alone being raised above it. Snout truncated. Parotids of medium size and oblong. Tympanum comparatively small. Body tuberculous or warty. Hind feet webbed to nearly the tip of the toes. The color is brownish green above, dirty white below, with blackish brown patches spread all over. There is a dorsal, narrow and yellowish stripe, extending posteriorly from behind the eyes along the whole length of the body.

Specimens were obtained on Columbia River and Puget Sound. The body of the largest one measures a little over four inches.

SCELOPORUS GRACILIS, B. and G. A pretty little species, calling to mind *Sc. graciosus* described and figured in Stansbury's Report on the great Salt Lake of Utah. It is slenderer, however, and possesses more elongated limbs and tail. The fingers and toes are likewise very slender. The head is gently conical in front; the plates which cover its upper surface resemble somewhat those in *Sc. graciosus*, although presenting good specific differences as will be shown by the figures. The scales are proportionally small and slightly carinated; larger on the tail. There are from twelve to fourteen distinct femoral pores right and left.

Above, the color is brown with a lateral and narrow yellowish stripe extending on either side from the eye to the tail, and margined by a series of elongated black dashes. On the sides of the body there is a double series of black crescents, convex backwards. The inferior part of the body is light and unicolor in the female, whilst the male is provided on the sides of the abdomen with a deep blue elongated area.

Inhabits Oregon.

SCELOPORUS OCCIDENTALIS, B. and G. This species has the general appearance and shape of *Sc. undulatus*, from which we distinguish it by marked differences in the cephalic plates. The dorsal scales are more strongly carinated and their posterior point more acute, thus giving to the animal a rougher aspect. The posterior margin of the scales on the lower surface of the head and sides is on the other hand much less indented, especially in advance of the hind legs.

Inhabits California, and probably Oregon, although less numerous in the latter country where it is replaced by *Sc. gracilis* and the following species.

SCELOPORUS FRONTALIS, B. and G. The most striking character of this species consists in the rounded shape of the snout, a feature attracting immediate notice.

The occipital, vertical and frontal plates resemble more those in *Sc. undulatus*, than in *Sc. occidentalis*, but the arrangement of the supraciliaries is more like that in *Sc. occidentalis* than in *Sc. undulatus*. The scales are slightly carinated; hence a general smooth appearance which contrasts somewhat strikingly with that of *Sc. occidentalis*. The dorsal scales are nearly of the same size as in *Sc. occidentalis*, but at the origin of the tail are sensibly larger. The tail of the unique specimen before us, is broken off at about an inch from the vent.

Caught in going up Puget Sound.

ELGARIA PRINCIPIS, B. and G. Twelve longitudinal rows of smooth abdominal scales, trapezoidal on the belly. Fourteen similar rows of carinated scales on the upper part of the body, forming forty-five transversal series from immediately behind the meatus to the origin of the tail. On the tail itself the scales are the largest, smooth underneath and slightly carinated above. The body and limbs are of slender appearance. The species appears not to attain a very large size; the largest individual seen measures about nine inches from the nose to the tip of the tail.

Of the cephalic plates the vertical one is the most prominent; the shape of the frontal plates readily distinguishes this species from *E. scincicauda*.

Color uniform olivaceous brown above and below; three series (either double or single) of black spots all along the upper region from the head to the tail.

From Oregon and Puget Sound.

ELGARIA FORMOSA, B. and G. Sixteen longitudinal rows of strongly carinated scales on the upper part of the body, forming about fifty transversal series from the meatus to the origin of the tail. Abdominal scales twelve rowed. Tail very long, conical, and tapering. Color yellowish green, with numerous irregular, narrow, transverse bands of brownish black tipped posteriorly with white.

This species resembles *Gerrhonotus multicarinatus* of Blainville, (*Elgaria multicarinata*) in the slender appearance of its body and limbs; the latter however assume still more this character in *E. multicarinata*, the scales of which are considerably larger than the species here described.

From California.

ELGARIA GRANDIS, B. and G. Fourteen longitudinal rows of carinated scales on the upper part of the body; the carina on the sides is but slightly apparent. Fifty transversal series from the meatus to the origin of the tail. Tail itself one and a half times as large as the body, conidal and tapering. Twelve rows of abdominal scales, subquandrangular in shape. Color olivaceous brown, with irregular, transverse and narrow bands of brownish black tipped posteriorly with white.

This species is intimately related to the preceding, from which it differs in the structure of the fronto-nasal plates and the shape of the scales generally. The limbs are also shorter.

Inhabits Oregon.

TROPIDONOTUS ORDINOIDES, B. and G. Is distinguished from *T. infernalis*, (*Coluber infernalis*, Bl.), to which it bears the closest resemblance, by a smaller and more slender head and likewise a smaller eye. There are two anterior orbitals, whilst *T. infernalis* has but one. The scales constituting the lateral row on either side of the abdomen are larger and not keeled. The scales on the upper part of the tail are likewise smooth. The general color is yellowish green with a dorsal yellow line; sometimes also there exists a lateral band of yellowish or whitish yellow, between which and the dorsal line, are two longitudinal rows of polymorphic black spots recalling to mind *T. ordinatus*.

From Puget Sound.

WENONA (Nov. gen.) Head conical, rather small and continuous with the body. Vertical plate about as broad as it is long; between it and the rostral plate are two or three pairs of frontals. Occipitals and supraorbitals rather small and nearly of equal size. Eyes very small, no loral plate; one anterior orbital, large; the post orbitals are not to be distinguished from the temporal scales. Body cylindrical, covered with small lozenge-shaped and smooth scales. Abdominal shields narrow, one rowed under the tail behind the vent, as well as on the abdomen. Tail very short, slightly tapering towards the tip.

This genus is related to Tortrix, and will probably include the *T. Bottæ* of Blainville.

WENONA ISABELLA, B. and G. Vertical plates broader than long. Two pairs of frontal ones. A small plate between the post-frontal pair and the vertical. Length about sixteen inches, of which about two belong to the tail. Of a uniform deep isabel color, lighter on the belly.

From Puget Sound.

WENONA PLUMBEA, B. and G. Vertical plate broader than long. Three pairs of frontal plates; the anterior pair extending on the side of the snout in advance of the nostrils as in the preceding species. The second pair extends likewise down and occupies the place of the loral, which may sometimes appear as an independent plate. Lower jaw much shorter than the upper one. A double row of plates along the upper jaw; length about eighteen inches. The tail two and a half inches and slightly tapering. Shield under the tail narrower and more elongated than in the preceding species. Of a uniform bluish lead color above, whitish beneath.

From Puget Sound.

CALAMARIA TENUIS, B. and G. General form slender; about eight inches in length from the tip of the snout to the end of the tail. Head somewhat detached from the body. Tail short and conical, one inch and a quarter in length. Occipital plates elongated, elliptical in form; vertical one subpentagonal. Two pairs of frontals, an odd and elliptical small plate in advance of the vertical, between the posterior frontals. Eyes proportionally large. Scales smooth and subelliptical in form. Color of a uniform brown, lighter beneath.

From Puget Sound.

CROTALUS LUCIFER, B. and G. Head subcircular or elliptical, nearly one inch and a quarter in length, covered on the vertex with very small and polygonal scales, elliptical and slightly carinated on the occipital region. One large supra orbital scutella obliquely striated. Eyes proportionally small, ten large anterior orbital plates; the upper one, which is the longest, is polygonal, whilst the lower one is triangular. The rostral plate is rather small, pointed above, higher than broad and pentagonal in form. The general color is reddish brown above, deeper along the dorsal line than on the sides, yellowish beneath. For two-thirds of the length there exists on the back a series of subcircular white rings lined internally with a narrow, black line. There are on the sides a series of irregular blotches which extend to the belly. The posterior third of the body is alternately semi-annulated above with black and yellow, the yellow, however, being much narrower than the black.

From Oregon and California.

EMYS MARMORATA, B. and G. The shape of the shell seen from above is regularly elliptical, slightly concave anteriorly, with a small notch behind. It is rather depressed and provided with a slight dorsal keel. Ventral shield rounded in front, openly concave behind. The tail is very slender and tapering. The posterior nails are stouter than the anterior ones and very much arched. The color is yellowish brown marbled with black.

The largest specimen under examination measures four inches in length from the tip of the snout to the end of the tail; the shell itself being only two inches and three-eighths in length and a little over two inches in width.

From Puget Sound.

The Committee on Dr. Hallowell's descriptions of new Reptiles, reported in favor of publication in the Proceedings.

Descriptions of new Species of Reptiles inhabiting North America.

BY EDWARD HALLOWELL, M. D.

TROPIDONOTUS RHOMBIFER.

Sp. Char. Head elongated, depressed, slightly swollen at the temples; a series of dark colored rhomboid spots upon the back, presenting the form of triangles, their apices posteriorly and anteriorly touching each other; a row of dark colored transverse bars upon the sides, uniting with the lateral inferior extremities of the rhomboid spots upon the back; a series of dark colored bands upon the tail; abdomen and under part of tail more or less maculated; scuta very strongly carinated: 25 rows of carinated scales; abdominal scuta 142; sub-caudal 70.

Dimensions. Length of head 1¼ inches (Fr.); greatest breadth posteriorly 10 lines; length of body 2 ft.; of tail 6¾ inches; total length 2 ft. 8 inches.

Habitat. Arkansas river and its tributaries, near the northern boundary of the Creek Nation; found abundantly on the borders of streams. Dr. Woodhouse observed one with many young on one of the sand banks of the Arkansas river.

TROPIDONOTUS TRANSVERSUS.

Sp. Char. Head large, swollen at the temples, convex posteriorly, flattened between the orbits, depressed in front; a series of subquadrate dark colored blotches, thirty-six or thirty-seven in number, along the back; a transverse row of oblong bars along the sides, their upper margins alternating with the inferior margins of the dorsal blotches; scales strongly carinated, 23 rows; abdominal scuta 144; sub-caudal 78.

Dimensions. Length of head 12 lines; greatest breadth 7; length of body 1 ft. (Fr.) 5 inches 7 lines; length of tail 6 inches; total length 2 ft.

Habitat. Creek boundary, found near the banks of the Arkansas and its tributaries.

Remarks. In Tropidinotus taxis pilotus the bars upon the back are much wider apart than in the above species, and it has but two posterior ocular plates; the arrangement of the temporal plates is also different; the frontal plate is much larger, and it has thirty-one rows of scales. Tropidonotus taxis pilotus is remarkable for its great size, being perhaps larger than any of our known water serpents transversus is a much smaller animal. The markings upon the back and sides correspond in some degree with Say's description of Coluber calligaster, but the scales in C. calligaster are smooth. The latter animal is most probably the one well know as Col. eximius.

PHRYNOSOMA PLANICEPS.

Sp. Char. Head more compressed, longer and broader than in P. cornutum nostrils within the supraciliary ridge; upper jaw bordered posteriorly by a row of pointed spines; central spine of the crown separated from the two adjacent spines by a wide interval; front part of head furrowed in the centre; scales of chin of nearly equal size; abdominal scales smooth or indistinctly carinated tail longer than in cornutum, and less suddenly tapering to a point; ground color of animal light yellow or ash color; (brown mingled with yellow in cornutum.)

Dimensions. Length of head 9 lines; greatest vertical measurement 7 lines breadth posteriorly, including spines, 1 inch 2 lines; length of body to vent 3 inches; length of tail 1 inch 7 lines; length of humerus 7 lines; of fore arm 6½; of hand to extremity of longest finger, including nail, 7½ lines; length of thigh 9 lines; of tibia 9 lines; of foot to extremity of longest toe nail 9½ lines total length 5 inches 4 lines.

Habitat. Western Texas, near the Rio Grande.

SCELOPORUS MARMORATUS.

Sp. Char. Four plates behind the rostral and between the nostrils, the two first more or less linear; six plates upon the frontal region; behind these, five plates surrounding one which is pentagonal; posterior to these, midway between the supraciliary ridges, a single large hexagonal plate (intraorbital;) snout rather pointed, more narrow than in delicatissimus; body slender; scales bipunctate posteriorly.

Dimensions. Length of head 6½ lines; greatest breadth 4 lines; length of neck and body to vent 1 inch 5 lines; length of tail 2 inches 10½ lines; length of humerus 3 lines; of fore arm 3 lines; length of hand to extremity of longest finger 4 lines; length of thigh 5 lines; of tibia 5 lines; of foot to extremity of longest toe 7 lines: circumference of body 14 lines; total length 4 inches 10 lines.

Habitat. San Antonio, Texas.

SCELOPORUS DELICATISSIMUS.

Sp. Char. Four plates behind the rostral and between the nostrils; the two first much smaller than the latter; nine plates upon the frontal region, in two rows (four in front and five posteriorly;) behind these five plates without the central pentagonal one above described; snout somewhat obtuse; body more slender than that of marmoratus; scales bipunctate posteriorly.

Dimensions. Length of head 6 lines; greatest breadth 4 lines; length of neck and body to vent 1 inch 5 lines; length of tail 3 inches 2 lines; length of humerus 3 lines; of fore arm 3 lines; of hand to extremity of longest finger 4 lines; of thigh 4 lines; of tibia 5 lines; of foot to extremity of longest toe 7½ lines; total length 5 inches 1 line.

Habitat. San Antonio, Texas.

PSAMMOPHIS FLAVI-GULARIS.

Sp. Char. Head long, superior and inferior marginal outline of cranial portion slightly convex; temples depressed; body robust; color light brown or fuscous above; chin, throat, abdomen, and under part of tail yellow; 17 rows of scales abdominal scuta 130; sub-caudal 97.

Dimensions of largest specimen. Length of head 1 inch 6½ lines; greatest breadth 9 lines; length of body 3 ft. 5 in. 7 lines; of tail 9 inches (mutilated;) greatest circumference 3 inches 2 lines.

Remarks. The animal above described differs from the Psammophis flagelliformis, in being more robust, and in its coloration; all the specimens brought by Dr. Woodhouse being of a light brown or olive color above, and of a yellow straw color beneath. The specimen of flagelliformis in the collection of the Academy corresponds with the description of Prof. Holbrook, who makes the following observations in regard to its color; "The superior surface of the head and neck and nearly one half of the body, is raven black, gradually becoming green on approaching the tail, which is of a very light brown or tawny color; the scales on the tail are rendered conspicuous by their dark margins. The inferior surface of the neck and anterior part of the abdomen is bluish slate color, the posterior part white clouded with brown; some parts of the abdomen white and shining, as well as the inferior surface of the tail. This snake, however, varies in color or rather in shade. Bartram has seen them of a cream color, clay colored, and sometimes almost white, but always raven black near the head." The Psammophis flagelliformis appears to be rare, Prof. Holbrook having seen but one specimen during a seven years' search; and Major Le Conte, who resided a long time in Georgia, informs me that he also has seen but one. The present species, according to Dr. Woodhouse, is very abundant where he discovered it—namely, in the sandy region reaching from the frontiers of Texas to the Creek Territory, and designated by a strip of timber extending across it. The specimen under consideration appears also to differ from flagelliformis in the form of the scales, the number of rows of which is the same in both species. In flagelliformis they are more narrow and elongated, resembling the scales of Dendrophis; in flavi-gularis they are broader, and many of them distinctly hexagonal. The tail is two and a half inches shorter than in flagelliformis, but the body of flagelliformis is eight inches longer. Schlegel observes that the serpents belonging to this genus may be considered as holding a middle place between the terrestrial serpents and those which inhabit trees; he describes eight species, none of which belong to the United States. The present species, however, is known to ascend trees with great agility, reaching their summits with ease when attacked.

ELGARIA, Gray.

ELGARIA MARGINATA.

Sp. Char.—Head and upper part of body and tail olive colored; a few minute points along the middle line of the back; nine or ten transverse bars of black along the sides; the posterior margin bordered with white; under surface greenish olive, immaculate.

Dimensions. Length of head 4¾ lines; greatest breadth 2 lines; length of neck and body to vent 1 inch; length of tail 1 inch (mutilated:) length of anterior extremities to end of the longest of the five fingers 4½ lines; length of posterior extremities to end of the longest of the five toes 6½ lines.

Habitat. New Mexico.

HOMALOSAURUS, Hallowell.

Gen. Char. Head depressed, covered above with polygonal scales; nostrils superior; occipital plate distinct; temples not swollen; marginal plates of the upper jaw imbricate; upper surface of neck, body, and tail covered with granulations; abdomen and under surface of the tail with smooth quadrangular scales; external openings to the ears; throat folded; femoral pores; tail but little longer than the body; body and entremities slender;

HOMALOSAURUS VENTRALIS.

Sp. Char. Head silvery white, with a tinge of yellow; body above ash-colored, thickly maculated with small white spots irregularly disposed; transverse dark colored bars upon the posterior extremities and base of tail; abdomen silvery white, with two longitudinal blue colored blotches having two oblique bars of black running across them; two small blue spots upon the under surface of tail.

Dimensions.—Length of head 7½ lines; length of neck and body to anus 2 inches 2½ lines; of tail in the specimen examined, which appears to have been mutilated and restored, 2 inches 3 lines; body 1 inch 5 lines in circumference; length of arm 6 lines; of fore arm 5½ lines; of hand to extremity of longest nail 7¾ lines; of feet to extremity of longest toe 1 inch 2 lines; total length of body 5 inches 1 line.

Habitat. New Mexico.

Remarks. This animal approaches Crotaphytus, Holbrook, but the nostrils are superior instead of being lateral as in the latter genus. The head of Crotaphytus is covered with tubercles, and the occipital plate does not exist, or is small and ill-defined. The forearm is also shorter and much more robust, and the longest fingers are of nearly equal length; in Homalosaurus the fourth finger is considerably longer than the third. The temples are much less swollen than in Crotaphytus, which has but a single row of plates along the border of the lower jaw. The nostrils in Holbrookia are situated as in Homalosaurus; and the plates along the margin of both the upper and under jaw have the same configuration and arrangement; the occipital plate also is very distinct, which, as well as most of the plates upon the upper part of the head, is smooth; a considerable number of granulations, however, are observed above the supraciliary ridge at its anterior and posterior part, chiefly in the former position; but in Holbrookia there are no external ears, the ear lying immediately beneath the skin, which covers it. Both Holbrookia and Crotaphytus have femoral pores, but no anal ones, of which also Crotaphytus is destitute.

CROTALUS LECONTEI.

Sp. Char. Head quadrangular, broader behind than in front, much flattened above; a few small plates in front; the rest of the upper surface of the head, except over the orbit, covered with scales; a series of about thirty subquadrate brownish blotches along the back, and ten or twelve transverse bands of the same color; brownish bands upon the tail; subquadrate blotches along the back, margined with light yellow; ground color light yellow or straw-color; scales strongly carinated; abdominal scuta 174; sub-caudal 27.

Dimensions. Length of head 14 lines; greatest breadth 11 lines; length of body 2 ft. 9 in. 9 lines; length of tail, exclusive of rattles, 2 inches 6 lines; length 2 ft. 6 inches 5 lines.

Habitat. Cross Timbers.

Remarks. My friend Dr. Le Conte informs me that he found near the Colorado, about seven hundred miles from the last mentioned locality, a species of Crotalus which was very abundant in that region, over four feet in length, and which appears to be the same as the one above described. He took the following notes of it upon the spot: "Crotalus—cinereous; black with a series of subrhomboidal spots margined with dark brown, and exterior to this a line of white scales; sides with a few darker cinereous spots; beneath pale ochraceous; neck and under part of head white; tail white, with four black rings,* becoming irregular beneath. Length 4½ feet; greatest circumference 5½ inches; 185 transverse scales beneath the body, 28 caudal; fourteen scales in the oblique rows from spine to side in middle and on neck; nine posteriorly and on tail. Colorado, March, 1851." The dorsal spots become indistinct behind. Sandy deserts.

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* In a young specimen brought by Dr. Woodhouse these four black rings are very distinct.

PITYOPHIS,* Holbrook.

PITYOPHIS AFFINIS.

Sp. Char. Scales much larger upon the sides than upon the back, where they are comparatively small; a series of brownish or black subquadrate blotches upon the back; a row of much smaller blotches on each side; transverse bands of jet black upon the tail; tail short; abdomen and tail thickly maculated with black; thirty-one rows of carinated scales; abdominal scuta 221; sub-caudal 64.

Dimensions. Length of head 1 inch 2 lines; greatest breadth 8 lines; length of body 2 ft. 5 inches; of tail 5 inches 5 lines; greatest circumference 2 inches 2½ lines.

Another specimen was received of the same species as the above, but which presents a remarkable deviation in the form and arrangement of the plates upon the head, which is no doubt abnormal. Thus there are seven plates upon the head, instead of six, as in Pityophis; these are arranged in three rows two plates in the front, two in the middle and three in the posterior; on each side of the middle row is a small quadrangular plate lying immediately above the loral, constituting as it were a superior loral; there is but one large ant-orbitar and four posterior orbitar on the right side, and three on the left; there are nine superior labials; abdominal scuta 227; sub-caudal 71.

Habitat. New Mexico.

LEPTOPHIS TÆNITA.

Sp. Char. Head much flattened, olive colored with yellow markings; ground color of body above olive, with two lateral longitudinal yellowish vittæ, extending from the occiput to the tail, each middle scale marked with a longitudinal line of black; two lines of black on each side, passing through the middle of two inferior rows of scales from the occiput to a short distance beyond the tail; abdomen immaculate, except toward the neck, where there are a number of small black spots; abdominal scuta 199; sub-caudal 130; 14 rows of longitudinal smooth scales.

Dimensions. Length of head 9½ lines; greatest breadth 5 lines; length of body 1 ft. 7 in. 5 lines; of tail 9 inches; circumference 1 inch 1 line; total length 2 ft. 5 inches 2½ lines; abdominal scuta 199; sub-caudal 140.

Habitat. New Mexico.

BUFO DORSALIS.

Sp. Char. Above dark brown, with numerous irregular lines of yellow; a vertical line of yellow continuous with one which is less distinct upon the head; transverse blotches of black upon the thighs and fore arms; under surface of the animal ochraceous.

Dimensions. Length of head 8 lines; greatest breadth 9 lines; length of head and body 3 inches; length of arm 8½ lines; of fore arm 7 lines; of hand to extremity of longest finger 10 lines; of leg 14 lines; of tarsus 9 lines; of foot 1 inch four lines to extremity of longest toe.

Habitat. New Mexico.

Remarks. This animal differs widely from the Bufo cognatus and Americanus, but resembles the lentiginosus, which Prof. Holbrook observes is found, without doubt, all along the shores of the Gulf of Mexico. It differs from it, however, in the elevation of the ridges upon the head, which in lentiginosus are highly developed, giving to the upper part of the head a canaliculated appearance, a condition that does not exist in this species.

The reptiles above described were collected by my friend Dr. Woodhouse, who was attached to the expedition under command of Capt. L. Sitgreaves, of the corps of Topographical Engineers, for the purpose of exploring the rivers Zuni and Great and Little Colorado of the West. Too much praise could not be awarded to Dr. Woodhouse, for the zeal and intelligent industry he has manifested in the performance of his arduous duties as physician and naturalist to the Expedition.

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* The genus Pityophis is characterized by its projecting snout and the presence of four posterior frontal plates in a transverse row, instead of two, as in the ordinary Colubers and Tropidonotes. These characters, with its peculiar physiognomy, cause it to be readily recognised by one familiar with our reptiles.

When the reptiles brought from Oregon and California by Mr. Townsend, and those of the Exploring Expedition, shall have been carefully studied, much will have been done toward the attainment of a knowledge of the geographical distribution of our reptiles, to which the admirable work of Prof. Holbrook has so greatly contributed. To him we owe nearly all the knowledge we possess with certainty of North American Herpetology, having brought into order and system what was before uncertain and confused, and in clear and classical language determined their characters with precision; thus greatly facilitating the labors of all future inquirers.

ANOTA, Hallowell.

Gen. Char. Head small, covered above with polygonal plates; a row of pointed spines posteriorly; nostrils within the supraciliary ridge: supraciliary ridge but slightly developed, terminating posteriorly in a small pointed spine; chin covered with smooth granulations of unequal size; a row of pointed scales on each side; two gular folds; *no external openings for the ears;* extremities slender; upper surface of body smooth, the numerous pointed species of the ordinary Phrynosomas not existing; no fringe along the lateral margins of the abdomen; body compressed, oval, tail nearly as long as the body; femoral pores very distinct.

ANOTA M'CALLII.

Sp. Char. Margin of upper jaw denticulated posteriorly; the two posterior of the rows of spines along the margin of the under jaw small; the two anterior to these quite large; the two middle spines of the row upon the occiput much longer than the rest, and incurvated; intermediate spine very small; body light ash color above, with a narrow dorsal line of black extending from the occiput to the root of the tail; two oblong dark colored blotches upon each side of the neck; two rows on each side of the dorsal line, of dark colored subcircular spots, two in a row, the external larger than the internal; ground color of upper surface of tail and extremities same as that of the upper surface of the body; under surface of body and extremities silvery white, immaculate; twenty distinct femoral pores on each side.

Dimensions. Length of head 7 lines; greatest breadth, exclusive of spines, 8 lines; length of longest spine 5¼ lines; of the next to it 2½; length of arm 7 lines; of fore arm 5 lines; of hand, to extremity of longest finger, 6 lines; length of thigh 7 lines; of tibia 7 lines; of foot to extremity of longest toe, 7½ lines; length of neck and body to vent 2 inches 4½ lines; length of tail 1 inch 8½ lines; total length 4 inches 5 lines.

Habitat. Great Desert of the Colorado, between Vallicita and Camp Yuma, about 160 miles east of San Diego.

Remarks. The animal above described is a Phrynosoma, the ears of which are concealed by the integument. It was caught by Col. George A. M'Call, of the United States Army, during a recent journey through California and Oregon, and presented by him to the Academy, with two young specimens of Phrynosoma coronatum. The great length of its middle posterior spines, its contracted neck and singularly shaped body and tail, give to it a very odd appearance, differing remarkably from that of any of the known Phrynosomata.

Descriptions of New Species of Reptiles from Oregon.

By EDWARD HALLOWELL, M. D.

TROPIDONOTUS CONCINNUS.

Sp. Char. Head slightly swollen at the temples, depressed; canthus rostralis grooved; a longitudinal yellow line running along the median line of the back, including one entire row and one half of each of the adjoining rows of scales; about sixty oblong transverse golden colored spots on each side; ground color raven black. Abdominal scuta 156; sub-caudal 78.

Description. The head is of moderate size, depressed above; the temples are somewhat swollen; the plates upon the upper part of the head, nine in number, do not differ materially from the plates of the Tropidonoti in general; the canthus rostralis, or that portion of the side of the head situated between the eye and the extremity of the snout, is distinctly, but not so deeply grooved as in Psammophis; the nostril is situated between two nasal plates, the anterior larger than the posterior; there is a small quadrilateral frenal plate; there is one ant-ocular, and three posterior oculars; a very small part of the ant-ocular plate is seen upon the surface of the head; the eye is of moderate size, projecting; there is a large temporal plate immediately behind the oculars, and posterior to it are four others; seven plates margin the upper jaw, of which the fifth and the sixth are the largest; neck contracted; body of moderate length, thicker in the middle; tail about one-fourth the length of the body. There are seventeen rows of carinated scales.

Color. Head light chesnut above, deeper in front; margin of upper jaw, for two thirds of its extent, light olive; ground color of the body and tail above and upon the sides, raven black; a yellow band, including one row and the half of each adjoining row of scales, extends from the occiput to the tail, along the middle line of the back; it is continued upon the tail, but there becomes more narrow; upon each side of the body, just above the inferior row of scales, is a row of about sixty transverse oblong golden colored spots; one and sometimes two of the intermediate scales is perfectly black; the spots themselves cover about three rows of scales. Abdominal scuta 156; sub-caudal 78.

Dimensions. Length of head 1 inch; greatest breadth 6 lines: length of body 2 ft. 3 inches length of tail 5 inches 10 lines; greatest circumference 2 inches five lines; total length 2 ft. 9 inches 10 lines.

Habitat. Oregon Territory. A specimen in the Museum of the Academy, presented by Dr. Shumard. The most beautiful of the North American serpents hitherto discovered.

HYLA SCAPULARIS.

Sp. Char. Head small; body small and slender, olive green above, with numerous irregular bluish blotches; a bluish vitta running from the eye over the shoulder: total length one and a half inches (Fr.)

Description. The head is short and small, depressed; the snout somewhat rounded; the nostrils are small and circular, looking upward and outward, about a line apart, situated immediately below the ridge running from the extremity of the snout to the anterior canthus of the eye; they are nearer the extremity of the snout than the eye; mouth quite large; the tongue is heart-shaped, quite free behind, notched upon its posterior border; there are two series of palatine teeth between the nostrils, and separated from each other by a narrow intermediate space; the eyes are round and project considerably; the tympanum is small and circular; the body is flattened, rather slender, much contracted posteriorly; extremities slender; the upper surface of the body and extremities present numerous small granulations; abdomen and under surface of extremities much granulated; the granulations upon the abdomen vary in size, and are closely in juxtaposition; chin and throat granulated.

Color. Ground color above greenish olive, presenting numerous irregular bluish blotches upon the surface; several deeper colored blotches upon the sides; a bluish vitta, about two-thirds of a line in breadth, extends from the posterior part of the eye along the sides of the neck over the shoulder, a short distance beyond which it terminates; upper surface of extremities marked with bluish spots.

Dimensions. Length of head 5 lines; greatest breadth 5 lines; length of body 1 inch; length of humerus 4 lines; of fore arm 3½ lines; of hand to extremity of longest finger 5 lines; length of thigh 7 lines; of leg 8 lines; of foot to extremity of longest toe 7½ lines; total length 1 inch 5 lines.

Habitat. Oregon Territory. Presented to the Academy by Dr. Shumard.

The Committee on the following paper by Mr. Cassin, reported in favor of publication in the Proceedings:

Descriptions of new species of Birds, specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia.

By JOHN CASSIN.

1. *Ammodromus ruficeps*, nobis.

Form. Rather slender; wings short, with the third, fourth and fifth quills nearly equal and longest; tail rather long, with the feathers narrow; legs long.

Dimensions. Total length of skin from tip of bill to end of tail about 5¾ inches, wing 2¼, tail 2¾ inches.

Colors. A conspicuous black line on each side of the throat from the base of the lower mandible. Head above bright reddish chestnut which is also the prevailing color of the back, but with the feathers of the latter broadly edged with ashy. Rump and upper tail coverts ash-gray, tinged with the chestnut color of the back.

Spot on the nares white, running into an ashy superciliary line, ear coverts and below ashy, succeeded by a white line from the lower mandible, which is again succeeded by the black line from its base.

Throat white tinged with dull brownish ashy, running into deeper shades of the same colors on the other inferior parts, deepest on the breast and with yellowish on the flanks and under tail coverts. Wings edged with pale yellow at the flexure, wing coverts and quills fuscous edged with cinereous and reddish. Tail fuscous, tinged and edged with reddish, the two middle feathers reddish brown.

Bill and tarsi light colored.

Hab. Calaveras river, California, discovered by A. L. Heermann, M. D.

Obs. Four specimens of this bird were brought by Dr. Heermann in the fine collection made by him in California. It does not resemble any other species sufficiently to render necessary any designation of comparative characters, and may be easily recognized by its distinct narrow lines of black on the sides of the neck, running from the base of the lower mandible.

2. *Emberiza rostrata*, nobis.

Form. Short and rather heavy, somewhat resembling *Peucæa Bachmanii* (Aud.) but with the bill and wings longer, the tail shorter, and hardly of the same genus. Somewhat resembles and is generically allied to *Emberiza Bairdii*, (Aud.), and is about the same size, but has the bill much longer, the tarsi and feet stouter, and the claws stronger and much less curved. Bill lengthened and strong. Wings, with the first, second and third quills longest and nearly equal. Tail rather short, emarginate.

Dimensions. Total length of skin from tip of bill to end of tail about 5¼ inches, wing 2¾, tail 2 inches.

Colors. Entire plumage above dull brownish and cinereous, every feather longitudinally marked with the former and tipped and edged with the latter, the brown stripes being most strongly marked on the head and back. Narrow, superciliary lines nearly uniting in front. Throat and entire under parts, white, with longitudinal stripes and arrow heads of brown on the breast and flanks; these stripes forming two lines on each side from the lower mandible and enclosing a stripe of white. Abdomen and under tail coverts dull white.

Wings and tail brown, edged with paler shades of the same color, nearly white on the outer webs of the external tail feathers, deeper and tinged with rufous on the wing coverts and exposed edges of the secondaries. Bill and feet light colored, the former brownish above, (in skin.)

Hab. Sea shore at San Diego, California, discovered by A. L. Heermann, M. D.

Obs. A plain plumaged bird, of which there are several specimens in Dr. Heermann's collection. It is unlike any other finch that I have ever seen, and may be recognized by its lengthened and strong bill, which is even stronger than that of *Peucæa Bachmanii.* In the general character of its form it approaches *E. Bairdii*, but is colored differently, is more robust and has the bill much larger.

3. *Spermestes nigriceps*, nobis.

Form. Small, with the bill rather large; wing with the second quill slightly longest; tail short. but wide and with the feathers broad.

Dimensions. Total length of skin from tip of bill to end of tail about 3¼ inches, wing 1⅝, tail 1¼ inches.

Colors. ♂. Head entirely black, which color is extended to the breast and sides of the body, on the latter (the sides) the black plumage is tipped with white. Middle of the abdominal region and under tail coverts white.

Back and wing coverts bright reddish chestnut, primary quills black with regularly disposed minute spots of white on their outer webs, exposed portion of secondaries reddish chestnut, rump black with minute white spots, tail black.

Bill and feet light colored (in skin.)

♀, or ♂ juv. Entire plumage above brownish tinged with chestnut on the back, below soiled yellowish or pale whitish brown, with a few black feathers on the throat; primaries black edged with white; tail brownish black.

Hab. Zanzibar.

Obs. Three specimens of this pretty species belong to the Rivoli collection, and are marked as from Zanzibar. It is similar to no other species of Spermestes with which I am acquainted, but is marked with white spots on the wings like *S. poensis*, (Frazer).

4. *Spermestes fuscans*, nobis.

Form. Small but robust, and with the bill very strong, wing with the first, second and third quills nearly equal, tail rather long, with the central feathers longest.

Dimensions. Total length of skin from tip of bill to end of tail about 3⅞ inches, wing 2, tail 2 inches.

Colors. Entire plumage dark chocolate brown, deeper on the throat and around the base of the bill. Inner webs of quills paler and nearly white. Bill horn color.

Hab. Borneo.

Obs. I have not succeeded in finding a description of this little bird, though specimens in the collection of the Academy have been labelled in Europe, "*F. nigerrima*," and others "*F. aterrima.*" It is not nearly related to any species known to me, and may be distinguished from all others by its plain uniform plumage.

5. *Ephialtes elegans*, nobis.

Form. A typical species, bill rather small, wings with the third and fourth quills longest and nearly equal, tail rather short.

Dimensions. Total length of skin from tip of bill to end of tail about 8½ to 9 inches, wing 6¾, tail 3½ inches.

Colors. Feathers of the ear tufts bright yellowish rufous, every feather marked longitudinally and with irregular transverse bands, and minute points of black, which color is almost confined to the outer webs. Face whitish, every feather with irregular lines and points of brown.

Entire plumage above pale umber brown, every feather with an obscure longitudinal stripe of brownish black and with very numerous irregular narrow lines and points of the same color. Plumage of the neck behind with white spots obscurely indicating a collar.

Inferior surface of the body handsomely mottled with white, light fulvous and brownish black; the former being the ground color and every feather longitudinally striped, and with numerous narrow transverse lines and points of the latter, these stripes most strongly marked on the breast, and least distinct on the abdomen and inferior tail-coverts. Flanks light fulvous; tarsi reddish, with irregular lines and spots of brown. Wings and tail umber brown, the former with square spots of reddish white on their outer webs, and the latter with numerous irregular lines, and narrow bands of reddish and brown.

Hab. Northern Asia, Japan? "En Mer, côtes du Japon, lat. 29° 47′ N. long. 126° 13′ 30″ E."

Obs. This is one of the handsomest of the small species of owls, and bears some resemblance, rather remote, however, and on a small scale, to the large Horned Owls. It is somewhat like *E. semitorques*, (Temm.) but wants the white on the throat and breast, and is smaller and differently colored, and has the toes bare. It resembles also to some extent both *L. lettia*, (Hodg.) and *E. lempiji*, (Horsf.) but is larger than either, and otherwise different. The brown stripes and lines on all parts of the plumage are unusually delicate.

Two specimens are in the collection of the Academy, the more adult of which was obtained by Dr. Wilson from Mr. J. P. Verreaux, of Paris, by whom it was designated as probably an undescribed species. It bears a label indicating the locality as above.

6. *Ephialtes Hendersonii*, nobis.

Form. Resembling *E. capensis* (Smith) and *E. senegalensis* (Sw.) but smaller than either, and has the bill shorter and weaker; wing with the third quill longest, but only slightly exceeding the fourth: tail short.

Dimensions. Total length of skin from tip of bill to end of tail 6½ inches, wing 5, tail 2½ inches.

Colors. Generally very similar to those of *E. capensis* (Smith) and *E. senegalensis* (Sw.), but darker and with the fine lines and points of brown throughout the plumage much more numerous and distinct. Entire plumage above cinereous, mixed on the neck, back and rump with bright fulvous, every feather longitudinally striped and with numerous very irregular transverse lines and points of brownish black most distinct on the head and back. Frontal feathers nearly white, tufts and face very pale cinereous, striped longitudinally, and minutely lined with dark brown. Plumage below variegated with white and brown, with a tinge of fulvous, every feather having stripes and minute lines and points, as on the back, but less numerous, with the white predominating and nearly pure on the lower abdomen and under tail coverts.

Quills brown with quadrangular spots of white on the outer webs. Tail pale cinereous with irregular transverse bars of brown and exhibiting a different style of coloring from either of the species above mentioned. Tarsi nearly white, obscurely spotted with brown.

Sexes similar.

Hab. Angola. "Came on board U. S. brig Perry off Novo Redondo."—Dr. Henderson's label.

Obs. It is not without some feeling of reluctance that I add another to the several nearly allied and little understood species resembling *E. scops*, (Linn.) Of these there are several which are clearly distinct and well marked, and the bird at present described is one of this character. My reluctance has arisen from the knowledge, that from the descriptions heretofore published, it is quite impossible for naturalists to identify them, or to ascertain in what manner one differs from another; and nothing short of actually examining the original specimens in European collections, which was done by Dr. Wilson in 1851, can afford the necessary information. From his notes and from specimens which he procured during his visit to Europe, and from others previously in the collection of the Academy, I have the gratification of entirely coinciding with him in the opinion that the following are distinct, but some of them nearly related species; *Ephialtes scops*, (Linn.) from which *E. pennata*, (Hodg.) cannot be distinguished; *E. capensis*, (Smith,) *E. senegalensis*, (Sw.,) *E. sunia*, (Hodg.,) of which I am acquainted with both young and adult, and *E. Hendersonii*, Cassin: and of another group also resembling *E. scops* to some extent, the following appear to be different: *E. lempiji* (Horsf.) which is *J. noctula*, Temm., *E. javanicus* (Less.) *E. lettia* (Hodg.,) *E. spilocephalus* (Blyth,) and *E. mantis* (Temm.,) which is *S. rufescens*, (Horsf.) Of all these species, specimens and mostly *suites* are now in the collection of this Academy, and I hope to give, at an early day, the result of an attempt to arrange them, and to reconcile their synonymes, in a second edition of my catalogue of *Strigidia* in our collection.

Of the interesting little bird at present described, two specimens, male and female, are in a collection made principally on the coasts of Angola and Benguela, during a recent voyage of the U. S. brig *Perry*, and presented to the Academy by A. A. Henderson, M. D., Surgeon U. S. Navy, who was attached to that vessel as a medical officer. I have taken the liberty of dedicating it to Dr. Henderson as a slight testimonial to his profound and varied scientific acquirements, and as a memento of our long-continued and pleasant friendship.

7. *Larus Heermanni*, nobis.

Form. Bill rather long and slender, wings very long, extending beyond the tail, first primary slightly longest; tail truncate or slightly emarginate.

Dimensions. Total length of skin from tip of bill to end of tail about 17¾ inches, wing 13¾, tail 5½, bill from the angle of the mouth to the tip 2¼ inches.

Colors. Bill red, both mandibles tipped with black; feet and legs dark; head white, which color gradually fades into an ashy lead color, enveloping the entire body above and below; darker above and on the wings, and paler beneath. Secondaries tipped with white, which forms an oblique bar of white on the wing.

Superior coverts of the tail pale cinereous, nearly white. Quills and tail brownish black, the latter tipped with white. Shafts of the two first primaries white on the inferior surface of the wing.

Young. Rather smaller, total length about 16 inches, wing 13, tail 5, bill from the angle of the mouth 2 inches. Entire plumage brown, dark on the head and paler on the under surface of the body, quills and tail feathers brownish black, the latter narrowly edged at the tip with white.

Hab. Coast of California at San Diego, discovered by A. L. Heermann, M.D.

Obs. This beautiful gull appears to belong to a group of species comprising Larus Belcheri, Vigors, L. erythrorynchus, Gould, and others, all of which inhabit the shores of the Pacific ocean. It is most nearly related to L. Belcheri, but is not so large, and has the head pure white, which is not the case in that species. In the description of the latter (in Zool. Jour. iv. p. 328,) the rump is described as white; in the present bird the rump is dark ashy, but the superior coverts of the tail nearly white, and in the young bird they are dark brown.

I have dedicated this handsome species to my friend Dr. Heermann, as a token of acknowledgment due to his accomplishment as a naturalist, and his great perseverance and success as a scientific traveller.

8. *Mergus americanus*, nobis. Wilson's Am. Orn. viii. pl. 68. Aud. B. of Am. pl. 331.

Obs. I propose this name for the common bird which has hitherto been regarded as identical with the European species well known as Mergus merganser, Linn. It is, however, specifically quite distinct. In the American bird the prolonged feathers of the head are almost restricted to the occiput and neck behind, but in that of Europe they commence almost at the base of the bill, and are erectile and crest-like. On the large wing coverts in the American species there is always an exposed and conspicuous bar of black, which, in the European species, is entirely concealed by the lesser coverts. This character is sufficient for the purpose of the practical recognition of the two species in all the specimens that I have ever examined, and may be observed on comparing any plates of the two species that I have seen, but especially Wilson Am. Orn. viii. pl. 68; Aud. B. of Am. pl. 331; Selby, Ill. pl. 57; Gould B. of Eur. v. pl. 39; and Korner Skandinaviska Foglar pl. 57.

9. *Anser parvipes*, nobis.

Form. Generally resembling *A. canadensis*, Linn., but not so large, and with the bill and feet much smaller, the latter being not much more than half the size of that species. Upper mandible not so strongly serrated on its edges, tarsi slender, tail rather fully developed. Possibly a Bernicla.

Dimensions. Total length of skin from tip of bill to end of tail about 28 inches, wing 15, tail 6 inches.

Colors. Much like those of *Anser canadensis*, *Bernicla Hutchinsii* and *B. leucoparica.* Large space on the throat and sides of the head white, head above and neck black, back and wings ashy brown, with the feathers having paler tips and edges, rump and tail black, upper tail coverts white; plumage beneath ashy white, with a silky yellowish tinge, and many feathers having darker subterminal stripes; ventral region and under tails coverts white.

Hab. Vera Cruz, Mexico.

Obs. One specimen of this singular bird has been several years in the collection of the Academy, having been presented by its eminent member Marmaduke Burrough, M. D., and collected by him during his residence at Vera Cruz. It resembles the common *Anser canadensis* in general appearance, but may at once be distinguished by the smaller size of the tarsi and feet, as well as its comparatively small and weaker bill. It is much larger than either *Bernicla Hutchinsii* or *Bernicla leucoparica* both of which are in the collection of the Academy.

The Committee to which was referred Mr. Cassin's "Catalogue of the Halcyonidæ in the collection of the Academy," reported in favor of publication. (☞ See end of the present No.)

ELECTION.

Dr. Dinwiddie B. Phillips, U. S. Navy, was elected *a Member* of the Academy.

November 2d, 1852.

Vice-President **Bridges** in the Chair.

Letters were read

From the Asiatic Society of Bengal, dated July 9th, 1852, acknowledging the receipt of the Journal of the Academy, vol. 2, part 2, and of the Proceedings vol. 6, part 1.

From the Chief Commissioners of H. M. Works and Public Buildings, dated London, Sept. 15, 1852, acknowledging the receipt of copies of the "Notice of the Academy by Dr. Ruschenberger," which have been deposited in the Museum of Practical Geology.

From M. Haidinger, dated Vienna, 20th April, 1852, transmitting the volumes acknowledged this evening.

From the Academy of Sciences of Vienna, dated October 3d, 1852, transmitting its works announced this evening.

November 9th.

Vice President **Bridges** in the Chair.

A letter was read from the Librarian of the British Museum, dated London, 21st Oct., 1852, acknowledging the receipt of recent Nos. of the Academy's Proceedings, &c.

Dr. Owen, in presenting to the Academy of Natural Sciences of Philadelphia a copy of the Geological Map of Wisconsin, Iowa and Minnesota, just published, made the following remarks:—

The region of country embraced in this geological map extends from latitude 38° to 49°, and from longitude 89° 30′ to 96° 30′. It has a length, from north to south, of 750 miles, and its greatest width 270 miles, the area being 200,000 square miles. Embracing the Mississippi river and all its tributaries, from its source to its junction with the Missouri; the Missouri river, as high as Council Bluff; the Red river of the north, from its source to the northern boundary of the United States; together with the northern and southern shores of Lake Superior, from Fond du Lac north to the British dominions, and east to the Michigan line.

All the calcareous rocks are represented on this map by tints of blue; the *pure* calcareous rocks being of pure blue tints, while the magnesio-calcareous or dolomitic rocks are of shades of purple blue; the sandstones, of yellow; the coal measures, of sepia; the metamorphic schists, of purple; the metamorphosed rocks, of Silurian date, of orange; while all the igneous rocks are of bright red colors.

A very large tract of the northern regions of this district, being more than one half of the country, is overspread with extensive drift deposites, penetrated only at a few limited and distant points, (these chiefly in the deep cuts of the streams,) by igneous rocks and metamorphic schists; except along the height of land dividing the waters of Lake Superior and the Mississippi; on the north west shore of Lake Superior and the region bordering on the British dominions, where the exposure of granite, gneiss, and metamorphic schists and trappose rocks, are rather more extensive.

The drift consists of deposites of sand, gravel clays of great thickness, of marls, and, locally, of erratic blocks. The summit levels of this region are from 500 to 1100 feet and more above Lake Superior.

A considerable portion of the southern and eastern part of this drift is based on the lowest protozoic sandstones of lower Silurian date; which formation is best explored in a semicircular belt east of the Mississippi and up the valley of the Wisconsin as high as Point Boss; and bearing northeast to the Michigan boundary line.

These lower Protozoic Sandstones have proved themselves far more fossiliferous than the corresponding strata in the State of New York—the Potsdam sandstone; having yielded, besides the two small Lingulas, *L. antiqua* and *prima*, of New York, four new genera of trilobites and at least nine or ten new species; which is the more remarkable since no remains of crustaceans had previously been found lower than the Trenton, Black river and Chazy limestones.

In the ascending order succeeds the Lower Magnesian Limestone, reaching the surface to the southwest of the Protozoic sandstones; characterized chiefly by gasteropodous mollusca, allied to *Pleurotomaria*, *Ophileta* and *Strapparolus*. They are represented by the deeper purple blue tints, and correspond in age to the calciferous sandrock of New York.

With the intervention of non-fossilliferous sandstones, from forty to eighty feet in thickness, often composed of limpid grains of quartz, there is superimposed on this formation, beds of shell-limestone of the age of the Trenton and Black river limestone of New York, and the blue limestones of Ohio and Indiana, containing *Leptæna alternata*, *sericea*, *deltoidea*, *Orthis testudenares*, *occidentalis*, *subæquata*, *Atrypa capax*, *modesta*, *Isotelus gigas*, *Calymena senaria*, besides a great variety of other fossils found in the corresponding strata in Ohio, Indiana and New York, besides many new species. Though somewhat magnesian, these beds are the purest limestone of Silurian date in the district.

Next succeeds, on the south, the lead-bearing beds of the upper magnesian limestone, colored Prussian blue, and containing *Spirifer lynx*, *biforatus*, *Lingula quadrata* and a few other fossils of the Trenton limestone, Utica slate and Hudson river group. This formation is represented of a lighter shade of purple blue. This part of the Upper Magnesian Limestone of Wisconsin has yielded latterly upwards of 50,000,000 of pounds of lead annually, and is about three hundred feet thick.

The upper 200 feet of upper magnesian limestone of Wisconsin, form what we have designated the Coralline and Pentamerus beds, from the abundance of *Catenepora escharoides* and *Pentamerus oblongus*, formed towards the top of this formation, which corresponds to the Niagara and Clinton groups of New York.

To the southwest of this, crossing the Mississippi, near its upper or Rock-island rapids, is a very pure calcareous formation, containing *Atrypa reticularis*, *aspera*, *Orthis resupinata*, *Phocops macropthalma*, and a variety of Spirifers, most of which are new species, allied to those of the Hamilton and Corniferous groups of New York, with extended hinge, and often with wide cardinal areas, and mostly smooth on the bourrelet or mesial fold. Also many of the corals found in the Onondaga limestone of New York and the limestones of the Eifel in Germany.

Much of the limestone of this formation has a close texture, smooth surface and conchoidal fracture, approaching to lithographic limestones.

The valley of the Mississippi, below Muscatine, is occupied by a zone of carboniferous limestone, which we divide into the upper and lower series, the former characterized by *Lithostrotion basaltiforme*, several species of *Productus*, the *Spirifers* and *Terebratulæ*; the latter by the *Archimedes*, a great variety of Pentramites and Crinoidea, *Productus punctatus*, *Spirifer cuspidatus*, *Spirifer striatus*, and remains of *Psammodus* and other fossil fishes; besides a variety of other species of organic remains. These beds of limestones encircle the Iowa and Missouri coal-field, and separate it from the Illinois coal-field, with which it may have been once in connection, before the denudation of the Mississippi Valley; but they are now separated by a belt of from 25 *to* 50 miles of this subcarboniferous limestone, now encroached upon only by a few outliers of the coal measures near the Keokuk rapids of the Mississippi.

The Iowa and Missouri coal-field, now for the first time laid down on a geological map, comprises in all about 50,000 square miles, nearly one half of which lies in Iowa, and the other half in Missouri. From north to south this coal-field is about 300 miles, and from east to west about 200.

This coal-field is shallow, hardly exceeding fifty fathoms, and the coal-bearing strata proper hardly 100 feet, It seems to be the attenuated part of the great coal-field east of the Mississippi. It contains from four to six workable beds of coal, which, in Iowa, vary from two to five or five and a half feet. Towards the southern margin of this coal-field, in Missouri, there are beds of great thickness—20 feet or more—of a character intermediate between cannel coal and asphaltum.

The coal of this coal-field is all highly bituminous and most slaty in its structure; very frequently presenting the woody fibre on the surface of the natural joints as distinctly displayed as on charcoal.

On the extreme south of this map will be observed, close to the southern margin of this coal-field, an uplift of magnesian limestone and sandstone of lower Silurian date, bordering on the lead region of Missouri, and to be found on both sides of the Missouri river, between Tavern Rock and Marion; here the carboniferous and lower Silurian rocks, are in close proximity and much blended together.

To the extreme west of the map, on the Missouri river, opposite the mouth of Floyd's river, the green represents the cretaceous formation which extends west of the Missouri river towards the heads of the Cheynne, Moreau and White rivers, where it is succeeded by that remarkable Eocene tertiary basin in the Mauvaise Terres of Nebraska, containing those interesting extinct races of fossil mammalia described by Dr. Leidy in the Memoir forming part of the geological report.

Many important additions will be found to our geographical knowledge of the country, derived partly from drafts and astronomical observations made by the geological corps, and partly from the most recent linial surveys.

For further particulars I beg to refer the members to the forthcoming geological report of the surveys of the region of country represented by this geological map.

November 16th.

Vice-President **Bridges** in the Chair.

A note was read from Mr. Elias Durand, dated Nov. 15, 1852, accompanying his donation, acknowledged this evening, of 109 autographs of Scientific and Literary men.

Dr. B. H. Coates stated that he had been referred by a friend to a passage in page 136, of a work entitled "The Unity of the Human Races, proved to be the doctrine of Scripture, Reason and Science; by the Rev. Thomas Smyth, D. D. New York, 1850"—in which his name is cited, with those of several others, as that of an "opponent" of the doctrine or dogma of the Unity of the Human Species; and this on the authority of the late Dr. Morton. Dr. Coates had no recollection of the passage in any of the writings of his late honored friend just named, or of any other, in which such a statement had been made for him; and could only presume that Dr. Smyth has either misapprehended some expression in Dr. Morton's books, or has quoted from memory without referring to the text. Dr. Coates hoped to be allowed to have placed upon record in the Proceedings of the Academy an explicit denial of the above allegation, having never held the opinion there implied as his. He acquiesces in what he believes to be the general judgment of the most scientific men—the unity of the human species—without claiming to have formed an independent opinion; but he is not ignorant that some strangely marked varieties, as the Ethiopian, are of a very high antiquity.

The proposition frequently combined with the above, that the origin of the whole human race is from a single couple, and that such is the legitimate construction of the biblical passages mentioning Adam and Eve, did not appear to him to be a question in Natural History; that is, he conceives it to be impossible, from any natural evidence now existing upon the surface of the earth, either to prove or disprove this proposition, or to render it more probable or improbable, and that it must, therefore, rest for its certainty upon revelation, records and the grammatical construction and just verbal meaning of an ancient language.

November 23d.

The President, Mr. ORD, in the Chair.

A letter was read from the Secretary of the Acad. C. L. C. Naturæ Curiosorum, dated Breslau, 28th Aug. 1852, presenting the volume of its Transactions acknowledged this evening.

Dr. Leidy presented a paper from M. Tuomey, entitled "Description of some fossil shells from the Tertiary of the Southern States," which, being intended for publication, was referred to a committee, consisting of Dr. Leidy, Mr. Conrad, and Mr. Charles E. Smith.

Dr. Woodhouse presented a paper for publication, describing a new species of Numenius; which was referred to Mr. Cassin, Dr. Wilson and Dr. Heermann.

Dr. Owen presented for inspection by the members, a copy of his Report of the Geological Survey of Iowa, Wisconsin and Minnesota, and called attention to some of the illustrations, which were produced by an entirely new method; the copy of the fossil being *medal-ruled* on the steel plate from the object itself.

November 30th.

Mr. ORD, President, in the Chair.

The committee on Mr. Tuomey's paper, offered at last meeting, reported in favor of publication in the Proceedings.

Description of some Fossil Shells from the Tertiary of the Southern States.

By M. TUOMEY, Prof. of Geology, Univ. of Alabama.

The fossils described in this paper are from a well known locality at Wilmington, N. C. The bed in which they were found is a coarse calcareous conglomerate resembling, in mineral composition, the compact white limestone of the Santee.

Sir Charles Lyell described this structure in the first volume of the Quarterly Journal of the Geological Society of London, and referred it to the Eocene. In a report on the geology of South Carolina I pointed out the existence of one or two Cretaceous forms—Ammonites placenta, Morton, and a Trigonia related to T. thoracica, Morton, in the same bed, together with Eocene fossils.

Some of the fossils described are much larger than any occurring in the Eocene, yet as a group, no one acquainted with our Cretaceous and Eocene fossils could hesitate in referring them to the latter. Besides, Sir Charles Lyell has given a list, from this locality, of several species found elsewhere in the Eocene.

As the deposit is a conglomerate and in the vicinity of cretaceous beds, it would occur to any one that the presence of a few cretaceous forms could be easily explained by supposing the breaking up of a cretaceous bed, and the transportation of its debris and included fossils into the eocene sea, where they were entombed with the molluscous remains of that period. Nevertheless it is evident that the cretaceous shells were filled at the same time, and with the same mineral matter as those of the eocene found with them, for the casts of both are composed of compact white limestone. Now, excepting the stratum on Timber Creek, New Jersey, none of our cretaceous deposits could furnish the mineral matter of either the casts of these shells or the rock in which they are enclosed. Between the Delaware and Chattahoochee the cretaceous rocks are made up of loose, grey, loamy and silicious strata, without white cretaceous beds; and in Alabama, the rotten limestone, which is the prevailing rock, is entirely different from the Wilmington bed; even the cretaceous deposit in the vicinity, from which it might be supposed these remains were derived, is composed of the usual dark-colored silicious stratum of green sand. It would be equally difficult to account for the presence of these fossils, by supposing that they remained empty and were subsequently drifted into the eocene sea, and there filled with sedimentary matter and buried with the forms of that period. At all events, after a careful examination of the locality, as well as the fossils, I could satisfy myself only by supposing the inhabitants of these shells to have lived and died during the eocene period, to have been cotemporaneous with the forms with the remains of which they are buried.

The fossils to be described are for the most part in the form of casts: frequently, however, casts of both the interior and exterior of the shells occur, and they are generally so characteristic that there can be but little danger of mistake, if even hereafter the shells themselves should be found.

1. Trochus mixus: large; axis very oblique; whorls 5 or 6, flat or slightly concave, marked by revolving lines obsoletely cancellated; suture of the cast deep, of the shell barely impressed; umbilicus open, deep.

Dimen. Spiral angle 75°; ht. 4; br. 5 in.

2. Pyrula ampla: ventricose, ovate; spire depressed; whorls 4, last one very large.

Dimen. Spiral angle 100°; ht. 6 in.; br. 4·5 in.

This fossil is also found in the white limestone of the Santee.

4. Fusus abruptus: ovoid; whorls rounded, ventricose, the last one terminating abruptly in the canal.

Dimen. Spiral angle 70°; ht. 6 in.; br. 4 in.

4. Conus mutilatus: spire depressed; whorls flattened; sides longitudinally convex.

Dimen. Spiral angle 101°; ht. 2·5 in.; br. 1·5 in.

Casts of shell are abundant at Wilmington, N. C., and in the white limestone of Alabama. It is also found in the eocene beds on the Santee. They are easily distinguished from the other eocene species. In *C. gyratus*, Morton, the spire is more produced; whilst in *C. sauridens*, Con., it is more depressed. Casts of the latter have the spiral whorls in nearly the same plane.

5. Voluta conoides: conical; spire short; whorls 4, columellar plaits numerous. Resembles Conus gyratus.

Dimen. Spiral angle 87°; ht. 2 in.; br. 1 in.

6. Trigonia divaricata: cast of left valve, ribs 15, somewhat acute, converging towards the posterior margin, arched on the umbones, divaricating below. After the sixth rib there is a half rib intercalated.

Dimen. Length 2 in.; br. 1·5 in.; ht. 1 in.

7. T. lunata: ribs 14, rounded, slightly ventricose; posterior margin crenulated.

Dimen. Length 1·75 in.; br. 1·25 in.; ht. 1·25 in.

This and the preceding are distinguished from *T. thoracica*, Morton, by their greater length compared with their breadth, as well as by the more round ribs.

8. CARDITA TRAPEZIUM: shell rhomboidal, cordate ventricose, ribs acute, crossed by coarse incremental lines.

Dimen. Length 2·25 in.; br. 2 in.; ht. 2 in.

This shell differs from C. alticosta, Con., in outline, as well as in being more ventricose, and having less prominent ribs.

9. CUCULLÆ LÆVIS: shell smooth or marked by increment lines, ribs none; umbones ventricose; beaks nearly central; hinge area wide; plate of anterior muscular impression extending from the beaks to the margin, wide.

Dimen. Length 4·25 in.; br. 3·5 in.

This fossil can be distinguished from C. vulgaris, which it resembles, by the smooth exterior, and deep and long muscular impression.

10. ARCA CANCELLATA: shell thin, very inequilateral, cancellated by radiating lines and approximating transverse lines; umbones prominent; beaks close; hinge-line slightly curved; posterior margin rounded, compressed; anterior margin much contracted.

Dimen. Length 2·5 in.; br. 3·5 in.

The Committee on the following paper by Dr. Woodhouse, reported in favor of publication in the Proceedings.

Description of a new species of Numineus (Moehr.)

By S. W. WOODHOUSE, M. D.

NUMINEUS OCCIDENTALIS.

Form. In general form and color, this bird is much like N. longirostris, Wilson. The color, however, is much lighter and more rufous, the bill short and very slender, the primaries are more pointed; their inner web is not so broad. Wings extend about half an inch beyond the tail. Toes short and slender.

		Inches.
Dimensions.	Total length of skin	16 3-10ths.
	Length of bill along the ridge	4 2-10ths.
	Wing from flexure	11 5-10ths.
	Length of tarsus	2 8-10ths.
	" middle toe	1 3½-10ths.
	" naked space of tibia	1 6-10ths.

Color. Feathers of the top of the head have a broad central line of blackish brown, terminating on their side by whitish brown; neck light reddish brown, the shaft of each feather being black and terminating by a broad blackish-brown spot. These of the hind part of the neck have the central line of black much broader. Chin white. Back black with irregular markings of reddish brown, forming spots; these, as they approach the rump, become more reddish and are broader, having much the appearance of bands. Upper tail coverts reddish brown; shafts black, with transverse black bands. The tail is slightly rounded, and consists of twelve feathers of a reddish brown color, with ten transverse black bands. Under coverts reddish brown. Belly and thighs light reddish brown. Sides reddish brown, with irregular blackish brown zigzag lines. The shaft of the first primary is white; the outer webs of the first three are black; of the fourth slightly mottled with reddish brown; on their inner webs reddish, mixed with irregular lines of brown; the remainder of the primaries are reddish brown, with zigzag transverse bars of black. The secondaries and tertials are more black, the bands being confluent in the middle. Under plumage long axillaries, inner wing coverts, bright reddish brown. Bill blackish brown. Legs and feet flesh color. A pale supracilliary line extends from the base of the bill.

Habitat. Rio Grande, New Mexico.

Obs. This remarkable species is closely allied to the N. longirostris and N. Hudsonicus, but from both of them it differs very materially. I procured it near Albuquerque, on the Rio Grande, whilst attached to the Expedition, as Surgeon and Naturalist, under the command of Captain L. Sitgreaves, Topographical engineer U. S. army, exploring the Zuni and the Great and Little Colorado rivers of the west. There were but few of them there at the time. They were on the sandbars of the river, feeding upon worms and insects.

ELECTIONS.

Dr. James M. Corse, of Philadelphia, was elected a *Member;* and Dr. H. W. Kennedy, of Buenos Ayres, and Mr. James Broome Smith, of California, were elected *Correspondents* of the Academy.

December 7th.

Vice-President Bridges in the Chair.

Letters were read

From Mr. Dexter Marsh, dated Greenfield, Mass. Dec. 3d, 1852, acknowledging the receipt of his notice of election, as a Correspondent.

From the Librarian of the Advocates' Library, Edinburgh, dated 1st Nov., 1852, acknowleding the receipt of a copy of Dr. Ruschenberger's Notice of the Academy.

From the President of the "Naturwissenchaftlichen Verien in Halle" dated 18th Oct. 1852, presenting the volumes of its Proceedings announced this evening, and asking an exchange of publications.

Dr. Heermann presented a paper intended for publication in the Journal, entitled "Notes on the Birds of California, collected during a three years residence in that country;" which was referred to Mr. Cassin, Dr. Woodhouse and Dr. Wilson.

Dr. Charles M. Wetherill read a paper, intended for publication in the Proceedings, entitled "Analyses of the Cotton Plant and Seed, with suggestions as to manures, by the late Thomas J. Sumner, of South Carolina; communicated by Chas. M. Wetherill;" which was referred to Dr. Genth, Dr. Le Conte and Mr. Vaux.

Dr. Hallowell presented a paper, intended for publication in the Proceedings, entitled "On a new genus, and two new species of Reptiles inhabiting North America;" referred to Dr. Le Conte, Dr. Woodhouse and Dr. Leidy.

Dr. Woodhouse presented a paper for publication in the Proceedings describing two new species of pouched Rats of the genera Geomys, Raf. and Perognathus, Wied, which was referred to a Committee consisting of Dr. Ruschenberger, Dr. Le Conte and Dr. Leidy.

Dr. E. K. Kane announced that a new American Expedition was about to proceed to the Arctic Regions in search of Sir John Franklin. Dr. Kane made some remarks explanatory of the geography of the region, and the plan of the proposed search.

The Secretary then read a letter from the Secretary of the Navy, addressed to Dr. Kane, assigning to him the conduct of the Expedition.

The following Resolutions were then offered and unanimously adopted.

Resolved, That a Committee be appointed to confer with Dr. E. K. Kane Commander of the projected Arctic Exploring Expedition, and communicate whatever information there may be in the possession of the Academy, relating to the collection and preservation of objects of Natural History and to procure such instruments and apparatus as may be necessary for this purpose, and for his use.

Committee:—Dr. Ruschenberger, Dr. Fisher, Mr. W. S. Vaux, Dr. Bridges and Mr. Cassin.

December 14*th.*

Vice President Bridges in the Chair.

Letters were read

From the Secretary of the Trustees of the New York State Library, dated Albany, Dec. 6th, 1852, acknowledging the receipt of the Proceedings, vol. 6, No. 5.

From Dr. H. W. Kennedy, of Buenos Ayres, dated Dec. 4th, 1852, acknowledging the receipt of his notice of election as a correspondent.

From the Right Rev. Alonzo Potter, dated Dec. 7th, 1852, acknowledging the receipt of his notice of election as a Correspondent.

Mr. Conrad presented a paper intended for publication in the Journal, entitled "Descriptions of New Fossil Shells of the United States;" which was referred to Dr. Ruschenberger, Dr. Leidy and Mr. Phillips.

Mr. Conrad presented a second paper intended for publication in the Proceedings, entitled "Remarks on the Tertiary Strata of St. Domingo, and of Vicksburg, Miss." Referred to the above Committee.

Dr. Woodhouse presented a paper, intended for publication in the Proceedings, describing a new bird, of the genus Struthus (Boib.) Referred to Dr. Heermann, Mr. Cassin and Dr. Wilson.

On leave granted, Dr. Ruschenberger, on behalf of the Committee appointed at the last meeting, on the subject of the proposed American Arctic Expedition, presented the following Preamble and Resolutions, which were adopted:

Every manifestation of disposition in the officers of the National and State governments to encourage the pursuit of truth, by affording facilities to men devoted to scientific investigations, is pleasing to the members of the Academy of Natural Sciences of Philadelphia. Aware of the important influence of scientific researches on the prosperity and happiness of the people, they are gratified to observe that the recent report of the Hon. John P. Kennedy, on the condition of the navy, is in tone and spirit cheering to those who are seeking to expand the limits of human knowledge in any of its branches. While asking Congress to augment the means of instructing young men for different departments of the naval service, he pleads the cause of science in a manner worthy of that enlightened judgment which should characterise all who participate in the direction of nautical affairs. He announces that expeditions to Japan, to the China Seas, to Africa, to the interior of South America, to the Pacific Ocean, and to the Arctic regions, are in progress, or about departing to seek and peacefully open new fields of enterprise; and while he incites the spirit of hardy adventure, he encourages, to the extent of the means in his power, careful observation and scientific investigation of natural phenomena. He advocates explorations which promise results beneficial to the agricultural, commercial and manufacturing industries of the country; and for motives apparently analogous to those which animate the members of this institution. Therefore,

Resolved, That the Corresponding Secretary be directed to address a letter to the Hon. John P. Kennedy, Secretary of the Navy, expressive of the gratification the Society derives from the disposition he manifests to encourage men engaged in the cultivation of science; a disposition more especially exhibited in the permission given to our fellow member, Dr. E. K. Kane, of the Navy, to undertake the direction and management of an expedition to the north polar regions, to ascertain the fate of Sir John Franklin; an enterprise sustained by the intelligent munificence of Henry Grinnell, Esq., and a few other American gentlemen.

Resolved, That science does not limit its benefits and influence to any class or caste of men; being open and free to all alike, it is republican and democratic in its tendency; and therefore, the members of the Academy of Natural Sciences of Philadelphia may hope that the National Legislature will foster the several expeditions embracing scientific research, by granting such seasonable supplies and substantial encouragement as may be worthy of the most powerful and wealthy republic on the face of the earth.

Resolved, That the Corresponding Secretary is hereby instructed to furnish a copy of these resolutions to the President of the Senate of the United States, and to the Speaker of the House of Representatives, for the information of Congress, and also to the Secretary of the Navy.

On leave, granted, Mr. Cassin, from the Committee on Dr. Heermann's paper, entitled "Notices of Birds observed in California," reported in favor of publication in the Journal of the Academy, which was adopted.

December 21*st.*

Vice President BRIDGES in the Chair.

Mr. Cassin presented a paper by P. R. Hoy, M. D., of Racine, Wisconsin, intended for publication in the Proceedings, describing two species of Owls, presumed to be new, inhabiting the State of Wisconsin during the winter season. Referred to Mr. Cassin, Prof. Haldeman and Dr. Heermann.

Mr. Conrad presented a paper intended for publication in the Proceedings, entitled, "Notes on Shells, and descriptions of new species." Referred to Dr. Ruschenberger, Dr. Le Conte and Prof. Haldeman.

Dr. Hallowell presented a paper, intended for publication in the Proceedings, "On a new genus and two new species of African

Serpents;" which was referred to a Committee consisting of Major Le Conte, Prof. Haldeman and Dr. Leidy.

Dr. Genth presented a paper, intended for publication in the Proceedings, entitled, "On a probably new *Element*, with *Iridosmene* and *Platinum*, from California." Referred to Prof. Frazer, Dr. Le Conte and Dr. Bridges.

Prof. Haldeman stated that he had seen, at the recent agricultural exhibition at Lancaster, Pa., a pair of *albino* specimens of Tamias lysteri (or striata); also a *black* specimen of the same species; which would throw light upon the varieties of the grey squirrels, since it is more likely that these should have black varieties than the uniform species of Tamias. The specimen was black throughout, and there were no indications of the lateral stripes. A few scattered hairs of white might be observed on a close inspection. Prof H. stated farther that he had had an idiotic specimen of Sciurus Hudsonius, which had the actions of a human idiot. It was thus affected when caught, and was merely able to take its food, but incapable of running or leaping. Its principal actions were turning in a circle and moving the head up and down continually.

December 28*th*.

Vice President BRIDGES in the Chair.

The Committe on Mr. Conrad's papers, containing "Remarks on the Tertiary Strata of St. Domingo and Vicksburg," and "Notes on Shells, with descriptions of new species," reported in favor of publication in the Proceedings.

Remarks on the Tertiary Strata of St. Domingo and Vicksburg, (Miss.)

By T. A. CONRAD.

The remarkable group of fossils which I discovered at Vicksburg, Miss., in 1845, derives a new interest for the geologist since the discovery of an analogous deposit in St. Domingo, in which are some few of the species of the Vicksburg strata. Whether all the forms of this group in St. Domingo are synchronous remains to be proved, but the probability is that they are. They have been referred to the Miocene period, whilst I had supposed that the Vicksburg strata were more intimately related to those of the Eocene period. I founded this supposition on the following data, viz:

1. No recent species was known, or is yet ascertained to occur in this locality.
2. Two or three fossil shells of the Older Eocene of Alabama are common.
3. No species is identical with, and only two or three analogous to, fossi shells of the American Miocene, even as the group occurs in South Carolina, bu little north of the latitude of Vicksburg.
4. The forms have a closer analogy with those of the European Eocene than with any other group of fossils.

It might be supposed that a more southern latitude would vary the Miocene species, but not that the percentage of recent shells would be reduced to zero nor would an utterly dissimilar group be introduced. The only condition which would seem likely to produce such a result would be a great depth of water, in which the shells had lived and died on the bed of a profounder sea than we have elsewhere eny evidence of; but this is not probable, because the presence of a many littoral genera as *Pleurotoma*, the species of which are very abundant in specimens, *Turritella*, *Natica*, *Terebra*, *Oliva*, and various others, indicate shallow water, and the abundance of comminuted shells and waterworn specimens attest the vicinity of a sea beach.

The well known Miocene deposits are remarkably unlike that of Vicksburg, in the abundance of large species of *Venus*, *Fulgur*, *Perna*, *and Panopaea*, some of which genera, with their peculiar species in every latitude, render the Miocene period recognizable at a glance. Indeed it is singular that the distinctive character of this formation should be so strongly marked over an extent of 400 miles north and south. Even the *Venus alveata*, a common Maryland fossil, seems to be abundant beneath the level of the sea, on Sullivan's Island, near Charleston, and another Maryland fossil, which I have named *Ecphora 4-costata*, (*Fusus 4-costatus* of Say,) was found on the beach of St. Simon's Island, Georgia. Both localities are south of the latitude of Vicksburg, the Georgia one nearly a degree farther south. The researches of Mr. Tuomey, in South Carolina, have brought to light at least 26 species, which are known to occur as far north as St. Mary's river, Maryland. From this comparison of groups it seems obvious that the Vicksburg deposit must be of earlier origin than the fossiliferous Tertiary strata of Maryland, Virginia, North and South Carolina, which seem all to be of one geological era, though Mr. Tuomey refers those of South Carolina to the Older Pliocene period. Whether the Mississippi formation should be termed an Older Miocene or a Newer Eocene, may yet be doubtful, but that it is intermediate between the Lower and Middle Tertiary, and differing widely from either in the period of its deposition, is obvious.

A careful exploration of the St. Domingo locality will probably clear up all doubts on the subject.

In conclusion, I may observe, that besides the *Turbinella Wilsoni* and *Oniscia harpula*, the *Cassidaria laevigata*, Forbes, is identical with my *C. lintea*, thus giving three species common to the Vicksburg and St. Domingo groups.

Notes on Shells, with Descriptions of new Species.

By T. A. CONRAD.

CRYPTODON, *Con.*

The name of this genus, founded on *Mya cancellata*, having been previously applied by Turton to another group of bivalves, and now adopted by some conchologists, it is necessary to change it, and I therefore propose

SCHIZOTHAERUS,

in allusion to the profound channel which indents the hinge of both sides of the cardinal teeth.

SCHIZOTHAERUS NUTTALLII.

Cryptodon Nuttallii, Con., Journ. A. N. S. vol. 7, p. 325, pl. 18, fig. 1.

UNIO.

UNIO MORTONI, Con., Dec. 1835.
U. turgidus, Lea, 1837.

Mr. Lea's description of this species was read at a meeting of the Philosophical Society in Dec. 1834, but *not published* before 1837.

Miocene species?

OSTREA.

Ostrea Titan. Elliptical or oblong; extremity thick and ponderous, contracted towards the hinge; ligament cavity profound; upper valve slightly arched; surface coarsely marked. Length 10½ inches.

Locality. San Luis Obispo, California.

This huge species is imbedded in friable limestone which contains abundance of silicious sand rounded by attrition. No other fossil can be detected in the portions of limestone which accompany the specimens.

Cretaceous Species.

PHOLAS.

Pholas pectorosa. Ovate-cuneate; anteriorly inflated, contracted in the middle; posterior side cuneiform; disk with radiating ribs, largest anteriorly, and interrupted by concentric furrows; anterior side very short, margin obtusely rounded or subtruncated; basal margin rounded anteriorly, contracted medially, straight posteriorly.

Locality. Tinton Falls, Monmouth Co., N. J.

This rare species was found by the late Lardner Vanuxem. It is a cast, on the right valve of which an impressed line runs obliquely from the apex, while on the opposite valve there is a corresponding furrow, and the three ribs nearest the posterior end are more remote from each other, than in the right valve.

INOCERAMUS, *Sow.*

Inoceramus Senseni.

Rounded; both valves profoundly curved; beaks involute, the volutions of the larger valve, 3, contiguous in both valves. Length 1½ inches; width 1¼ in.

Locality. Missouri river, Nebraska. Mr. Senseny.

Inoceramus perovalis. Oval, convex, slightly oblique; beaks medial, both dorsal margins equally declining; basal margin acutely rounded: surface with obsolete concentric undulations. Height about 1¼ inches; length less than the height.

Locality. Chesapeake and Delaware Canal. Mr. Vanuxem.

The Committee on papers by Dr. Woodhouse—namely, "Description of two new species of Pouched Rats," and "Description of a new species of Struthus," reported in favor of publication in the Proceedings.

Description of a New Species of Pouched Rat, of the Genus Perognathus, Wied.

By S. W. W. WOODHOUSE, M. D.

PEROGNATHUS PENECILLATUS.

Characters. Above yellowish brown, beneath white, tail longer than the head and body, penecillate, with bright brown hair.

Form. Head of moderate size, not easily distinguished from the neck; incisors small and partially exposed, upper ones sulcate in the middle. Nose small and rather pointed, extending some distance beyond the incisors; whiskers light brown, irregularly mixed with black; eyes dark brown, and of moderate size; ears nearly round and moderate, almost naked anteriorly and covered posteriorly with fine brown fur; the tragus and antitragus are quite prominent. The external meatus is protected by a tuft of short black bristles extending across the ear. Tail about one and a quarter inches longer than the head and body, round, gradually tapering, and covered with hair; on the superior and middle portion commences a row of long silky hairs, which gradually increase in width until they form a tuft at the end. Fore legs short, feet small, with four well developed toes and a short thumb, which is armed with a nail; palms naked. Hind legs and feet long, having five toes, terminated by nails. Feet and toes covered with short fine fur; soles naked. The fur longer on the back than on the belly; it is thick, soft and silky.

Color. Incisors yellow, top of head and back dark yellowish brown, lighter on the sides; fur at base light ash color. Throat, belly, vent, fore legs and inner portions of thighs white. The white commences at the nostrils, and forms a well marked line to the thighs, and extending down to the heel, leaving the front of thigh white, the remainder and outer portion light yellowish brown; feet white. Under portion of tail white, above dark brown; the long hair of the tail is a rich brown.

		Inches.
Dimensions.	Total length from tip of nose to root of tail -	3 5-10ths.
	" " of tail vertebra - - - -	3 7-10ths.
	" " of ear anterior - - - -	3-10ths.
	" " of whiskers - - - -	1 7-10ths.
	" " os calcis, middle toe nail - -	1.
	Distance from anterior angle of orbit to tip of nose	6½-10ths.

Habitat. New Mexico, west of Rio Grande.

Obs. Of the habits of this animal I know but little. The specimen in my possession is a male, and was procured in the San Francisco Mountain, New Mexico.

Description of a New Species of Pouched Rat of the Genus Geomys, Raf.

By S. W. Woodhouse, M. D.

GEOMYS FULVUS.

Characters. Light reddish brown above, beneath whitish. Ears small, round, and covered with thick short black fur. Tail long in proportion when compared with others of this genus.

Description. Head large, nose broad, covered with short thick fur, with the exception of a small space at tip and the margins of the nostrils, which are naked. The nose extends a short distance beyond the plane of the incisors. The incisors are exserted, with three convex smooth sides, the exterior broadest, and of a yellowish color; their cutting edges are even. The upper incisors extend downwards and inwards; the under ones are one-third longer than the upper, and slightly narrower. Ears small and round, covered with short thick black fur externally. Eyes larger than is common in this genus. Tail round, thick at base, and gradually tapering. The fore claws are long, compressed, slightly curved and pointed. The claw on the middle toe is the longest, the fifth is the shortest, and that of the thumb resembles much the claw of the fourth toe of the hind foot, both as regards size and shape. The toes on the hind feet are a little longer and more slender than those of the fore feet; the nails short, somewhat conical and excavated underneath.

Color. Head, cheeks, back and sides bright reddish brown, being darker on the top of the head and back. The breast, vent, feet, inner portion of legs and thighs white, slightly inclining to ash; abdomen very light reddish brown; fur at base dark ash color above, beneath light ash. Edges of cheek pouches encircled with rufous; the long hair of the back extends about one third the length of the tail. The tail is covered with short white silky hairs, terminating in a small tuft. The fore feet above are covered with short white hair; the toes on their inner side have a row of long white hairs; palms naked. Claws are opaque, white for half their extent, the other half transparent; there is a small oblong reddish brown spot in the centre of each. The hind feet are covered above with white hairs, soles naked. The lips, on their inner side, are covered with short fine white hair, with a band of short fine black fur encircling the mouth. Whiskers silvery white.

		Inches.
Dimensions.	Total length from tip of nose to root of tail -	5.
	" " of tail vertebra - - - - -	1 3-10ths.
	" " from anterior angle of eye to tip of nose	7-10ths.
	" " from tip of nose to auditory opening	1 1½-10ths.
	" " of os calcis including middle toe and claw - - - - - -	1 1-10th.
	" " from elbow to end of middle hind claw - - - -	1 8-10ths.
	" " of middle fore claw - - - -	4-10ths.
	" " of hind claw - - - - -	2½-10ths.
	" " of fur on back - - - - -	2½-10ths.
	" " of whiskers, about - - - -	1 in.

Habitat. New Mexico, west of Rio Grande.

Obs. The specimen in my collection was procured near the San Francisco Mountain, New Mexico, where they were quite abundant.

These Pouched Rats of the genus Perognathus and Geomys I procured whilst attached as Surgeon and Naturalist to the party under command of Capt. Sitgreaves, U. S. Army, exploring at Zuni, and Little and Great Colorado Rivers of the west.

Description of a new Snow Finch of the genus Struthus, Boie.

By S. W. Woodhouse, M. D.

Struthus caniceps.

Form. Bill longer and more gradually tapering than in S. oregonus. Wings rounded; first quill shortest; second, third and fourth nearly equal; third slightly longest. Tail long and slightly emarginate. Tarsus long and slender.

Colors. Head above, back of neck, and cheeks dark gray; throat, breast, and sides lighter grey; abdomen, vent, and under tail coverts inclining to white. Upper mandible dark brown, almost black; space between the eye and base of bill black. Back bright reddish brown; rump and upper tail coverts dark grey. Tail dark brownish black, with the lateral feathers in some specimens entirely white, and with others having large spots of white on their inner webs. In one of the specimens which I have seen, all of the three lateral feathers are mottled. Wings, with the primaries dark brown, and their outer margin narrowly edged with yellowish white. The secondaries with their inner webs dark brown, and their outer light reddish brown; scapular and lesser wing coverts light reddish brown. Tarsi and feet flesh color; nails brownish.

		Inches.
Dimensions.	Total length of skin from the tip of bill to end of tail,	6 2-10ths.
	" of bill along the ridge - - - -	4½-10ths.
	" of wing from flexure - - - -	3 1½-10ths.
	" of tarsus - - - - - - - -	8½-10ths.
	" of tail - - - - - - - -	3 1-10th.

The female has the feet and bill colored like the male; the general plumage is darker and not so bright. The head is ashy brown, back dark reddish brown; secondaries dark brown, with a slight reddish brown margin on the outer webs. Scapular feathers and lesser wing coverts greyish brown; the measurements differ but little from those of the male, being slightly smaller.

Habitat. Western Texas and New Mexico.

Obs. My attention was first called to this bird by my friend Mr. John Cassin, who very kindly suggested an examination of several specimens of mine in the collection of the Academy in connection with another in his possession, and a female in the collection, made by me when attached to the Exploring party under the command of Capt. Sitgreaves, Topographical Engineer. U. S. Army, in the

San Francisco Mountain, New Mexico. One of the specimens in the collection of the Academy is from Mexico, the others are from Texas. My specimen is from New Mexico. When obtained it was feeding in company with S. oregonus and various species of Parus, and it appeared very similar to the former and the common snow bird (S. hyemalis) in its habits.

The Committee on the following papers by Dr. Hallowell—namely, "On a new Genus and two new Species of African Serpents," and "On a new Genus and new Species of Reptiles, inhabiting North America," reported in favor of publication in the Proceedings:

On a new Genus and two new species of African Serpents.

By Edward Hallowell, M. D.

Dinophis *Hallowell.*

Gen. Char.—Form, that of a tree snake; perforated fangs in the anterior part of the upper jaw, immovable; several of the anterior teeth of the lower jaw longer than the others; but two rows of teeth in the upper jaw, the exterior row not existing; two rows in the lower jaw, quite short; no loral plate; 4 posterior,* 3 anterior orbital plates; tail long, sub-caudal scales bifid.

Dinophis *Hammondii.*

Sp. Char.—Head olive color above, superior labials bordered with black; body above and upon sides green; total length about six feet; thirteen rows of long and smooth scales. Abdom. scuta 127. Sub-caud. 116.

Description.—The head is long, rounded and narrow in front, covered above with nine plates; the upper surface in front of the orbit is flattened; between the orbit it is convex, and also, but to a less extent, upon the occiput; the rostral is large, heptagonal, much broader below than above, excavated inferiorly, rounded in front; the anterior frontal are much smaller than the posterior, and are more or less quadrilateral in shape; the posterior frontal are very large, irregularly quadrilateral; they are prolonged externally upon the sides of the head, passing downward between the posterior nasal and the two superior antocular plates; the vertical plate is short, very broad anteriorly; the supra-orbital are also short, projecting very slightly over the eye, narrow in front, broad behind; the occipital are very large and pentangular, much larger than broad; there are two nasal plates of nearly equal size, the anterior somewhat larger, with the nostrals between them; the external openings for the latter are quite large; there is no loral plate; there are three antocular and four posterior-oculars; the superior antocular is the largest of the three; it is prolonged superiorly, so as to form a part of the upper surface of the head, entering in between the posterior frontal and the vertical and supra-orbital plates; the inferior antocular is small and quadrilateral, the middle long and slender; there are eight plates upon the margin of the upper jaw; of these the seventh is the largest, and is remarkable for its unusual form; its superior margin is nearly straight, its posterior and inferior very much curved; the plate on the left side in the specimen examined differs considerably from that on the right, being more prolonged, and also truncated posteriorly; the fourth labial plate forms part of the inferior margin of the orbit, the remainder being completed by the inferior, anterior, and posterior oculars; there is a long, triangular, temporal plate occupying the space between the occipital and the seventh superior labial; the eyes are of moderate size, slightly projecting; there are but two rows of teeth in the upper jaw, one on each side, and two in the lower; in the front part of the upper jaw, immediately below the nostril, on each side of the head, is a curved and perforated immovable fang about three lines in length; there is no pit between the eye and the nostril, and this space is not channelled as in L. gracilis and Kirtlandii; several of the anterior teeth in the lower jaw are much larger than the others; the longest is slender and deeply fissured anteriorly. The neck is contracted, the body long, thicker about the middle, covered above with long and smooth quadrangular scales, arranged in thirteen rows; the scales nearest the abdomen are shorter than the others; the tail is quite long, covered above with four rows of short hexagonal scales, with margins more or less rounded posteriorly; the plates upon the under part of the tail are bifid.

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* In one of the specimens there are but three posterior oculars.

Color.—Head olive colored above, lighter upon the sides; the posterior margins of the labial plates black; posterior margin of inferior labials also black; neck, upper part and side of body green, the scales upon the posterior part of the body bordered with black; abdomen greenish, without spots or blotches; tail greenish olive, many of the scales bordered with black.

Dimensions.—Length of head 1 inch 4 lines; greatest breadth 9 lines; length of the body 3 ft. 11 inch. 2¼ lines; length of tail 1 ft. 5 inch. 7 lines; total lenth 5 ft. 7 inch. 2 lines; greatest circumference 2 inch. 8 lines.

I have named this serpent after my friend Ogden Hammond, Esq., of Charleston, S. Carolina.

Dimensions of a larger specimen.—Length of head 1 inch 6 lines; greatest breadth 11 lines; breadth between the orbits posteriorly 9 lines; length of body 4 ft. 6½ inches; of tail 1 ft. 5 inch. 9 lines; total length 6 ft. 1 in. 9½ lines; greatest circumference 3 inches. Abdom. scuta 225; 112 pairs of subcaudal plates.

Habitat.—Liberia, W. Africa: Two specimens in the Museum of the Academy, presented by Dr. Goheen.

Remarks.—The dentition of this animal is very remarkable, no serpent with which I am acquainted having a single immovable perforated fang on each side of the anterior portion of the upper jaw. It is well known to Herpetologists that, although in Vipera, Naja, and other genera of venomous snakes, the exterior row of teeth is wanting; the poisonous fangs in certain serpents have behind them a number of smaller grooved teeth. This condition exists, according to Prof. Owen, in all the family of marine serpents, four such being found in Hydrophis striata, and five in Hydrophis schistosa. This is the case also in Bungarus, a land serpent, and in Hamadryas, a genus of poisonous tree snakes* in India, established by Dr. Cantor.† In our own venomous serpents, Elaps, Trigonocephalus and Crotalus, the exterior row of teeth is wanting. In this respect they resemble Dinophis, but the fang in the latter genus is, as above stated, quite immovable. In one of the specimens a movable perforated fang was observed on the right side behind the other immovable one.

Dr. Edward Whitaker Gray, in the Philosophical Transactions of London for 1789, makes some interesting observations on the "class of animals called by Linnæus, amphibia; particularly on the means of distinguishing those serpents which are venomous from those which are not so." He arrives at the conclusion that the only mode of distinguishing a venomous from a non-venomous serpent is by an examination of their teeth; the tail, which is usually short in the venomous species, being sometimes short in the innocuous. This is the case in Pityophis affinis, and melanoleucus, both harmless serpents, with very short tails. Serpents whose appearance indicates inoffensiveness are not unfrequently very dangerous, as in the instance above cited, and in that of the genus Sepedon of Merrem, and Distichurus maculatus, which is quite small, and resembles in its general appearance an ordinary Coluber, but is provided with a small isolated fang on each side of the upper jaw. One of these, I have been informed, killed a black woman in Western Africa, death ensuing a short time after the bite; so that, as a general rule, it is best for travellers to avoid all serpents, unless they be naturalists and well acquainted with their structure and habits. In Bucephalus, a genus established by Dr. Andrew Smith, found in S. Africa, the posterior teeth are larger than the rest, and grooved upon their anterior and convex surface, as is the case also in Dryophis and Dipsas. Bucephalus, according to Dr. Smith, has six rows of teeth in the upper jaw, which is very remarkable, most serpents having but four. In vol. iv. p. 39 of the Proceedings of the Academy, mention is made by Dr. Savage of a wood sawyer having been bitten by a green serpent, while in the act of preparing a log for the saw—probably one of the species above described. The wound was in the foot, which was swollen, as was also the leg as high as the knee. Strong rum and Sulph. of Morphia were administered, and a free incision was made over the wound. Passive hemorrhage ensuing, the vessels were taken up and tied; the whole limb up to the groin became enormously swollen; a bad sore followed the incision, and the cuticle of the limb to a great extent came off. He recovered at the end of three weeks.

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* These poisonous tree snakes are probably more numerous in the East than is generally supposed. Dr. Ruschenberger informs me that in Siam he observed a large green tree snake, which was said by the natives to be very venomous.

† Proceedings of the Zoological Society of London, 1838, p. 72.

DENDROPHIS, Boie.

DENDROPHIS FLAVIGULARIS.

Sp. Char. Head dark brown above, lighter upon the sides; body and tail jet black; thirteen rows of scales; total length 6 ft. 3 in. 10 lines. Abdominal scuta 207; sub-caudal 146.

Description. The head presents the form of a triangle truncated anteriorly, depressed above posteriorly; rostral plate pentangular, broader below than above, rounded in front; there are two nasal plates with the nostrils between them; the anterior nasal is very large; there is a loral plate, also large and more or less quadrangular in shape; there is but one ant-ocular, which is broad above, its upper surface extending inward between the posterior frontal and the supra-ocular; there are three post-oculars, the two upper of nearly equal size, the inferior long and slender; there are two anterior and two posterior frontals, the posterior rather larger than the anterior; the vertical is pentagonal, much broader anteriorly; the supra-oculars are large, broad behind, narrow in front; the occipitals are broad and short, their transverse diameter being equal to their length; there are two temporal plates behind the posterior ocular, the posterior much larger than the anterior; there are eight superior labials, the fourth and fifth forming part of the orbit, the sixth and seventh are the largest; the eyes are very large; there are four rows of teeth in the upper jaw; nine plates margin the lower jaw on each side; the neck is contracted; the body long and slender, thicker in the middle, covered above with long and narrow carinated scales; those nearest the abdomen are shorter and broader than the rest; tail covered with smooth imbricated scales, broader than long.

Color. Dark brown upon the upper part of the head, and upon the temples; lighter upon the sides; chin and throat yellowish white; neck yellowish white, spotted with black; body and tail jet black; lighter upon the abdomen.

Dimensions. Length of head 1 inch 4 lines; greatest breadth 6½ lines; length of body 3 ft. 5 in. 2¼ lines; length of tail 1 ft. 6 in. 8 lines; greatest circumference 2¾ inches.

Habitat. Liberia, Western Africa.

A specimen in the Museum of the Academy, presented by Dr. Henry A. Ford.

Remarks. The animal above described has a general resemblance to the Bucephalus capensis of Dr. Andrew Smith, and is of about the same length, but differs in color. Bucephalus capensis, according to Dr. Smith, has six rows of teeth.

On a New Genus and three New Species of Reptiles inhabiting North America.

By EDWARD HALLOWELL, M. D.

LAMPROSAURUS, Hallowell.

Gen. Char. Head conical, pointed, rostral vertical, the supra-nasals on each side contiguous; internasal large; nostrils between two nasal plates; two fronto-parietals; tympanum depressed; a few small scales in front of the ear; no gular fold; body and extremities slender; toes 5-5; scales smooth and shining, similar upon back and abdomen, rounded posteriorly; preanal scales large; no femoral pores; no palatine or sphenoidal teeth; body and extremities slender.

LAMPROSAURUS GUTTULATUS.

Sp. Char. Body and upper surface of extremities black; a row of seven or eight white spots along the margin of the upper jaw; a row of white spots along the inferior margin of the supra-orbitar plates, continuous with which is a white spot upon the fronto-nasal, and another upon the parietal plates: the rest of the upper surface, sides and front part of the head, are jet black, with the exception of a small white spot along the upper margin of the third supra-orbitar, and one which is indistinct upon the freno-nasal plate; chin black: throat, abdomen and under surface of extremities iron grey, with a shining lustre. Total length 2 inches 6 lines.

Description. The head is elongated, conical and pointed, rounded above and in front; the rostral plate is vertical, pentangular, not grooved inferiorly, a little larger, apparently, in the vertical direction than transversely; there are two nasal plates, with the nostril between them; there are two supero-nasals, one on each side, contiguous, rhomboidal; the internasal is large, in contact laterally with the supero-nasal and the freno-nasal plate; in front with the supero-nasal, posteriorly with the fronto-nasal; the fronto-nasal are pentagonal, larger than the supero-nasal, their internal angle prolonged; they are in contact anteriorly with the inter-nasal and the freno-nasal; laterally with the freno-orbitar and the anterior supra-orbitar; posteriorly with the frontal; the frontal plate is long and hexagonal, broader in front, excavated laterally; the fronto-parietal are large and quadrilateral, larger than the fronto-nasal; the inner-parietal is broad and rather short, rounded posteriorly, the anterior angle passing in between the fronto-parietals; the parietals are large; there are five supra-orbitar plates, the third the largest; there are seven superior labials on one side and eight on the other, the last the largest; body and extremities slender; tail, according to Dr. Hammond, nearly as long as the body (mutilated in the specimen;) fourth toe much longer than the third, and stouter; third and fourth fingers of nearly equal length; body covered above with smooth imbricated scales, broad and rounded posteriorly; the scales upon the abdomen are similar to those upon the back: no femoral or anal pores; chin, throat and extremities covered with smooth imbricated scales.

Color. Body and upper surface of extremities black; a row of seven or eight white spots along the margin of the upper jaw; a row of white spots along the superior margin of the supra-orbitar plates, continuous with which is a white spot upon the fronto-nasal, and another upon the parietal; the rest of the upper surface, sides and front part of the head is jet black, with the exception of a small white spot along the upper margin of the third supra-orbitar, and one, which is indistinct, upon the freno-nasal; chin black. throat, abdomen and under surface of extremities iron grey, with a shining lustre.

Dimensions. Length of head 4 lines; greatest breadth 2½ lines; length of neck and body 1 inch; of anterior extremity 7 lines; of posterior the same. of tail about 1 inch 2 lines.

Habitat. New Mexico, Fort Fillmore, below the Jornada del Muerte: found also, at El Paso; rare, Dr. Hammond having seen but two specimens.

The specimen above described was found by Dr. G. F. Hammond, and presented by him to the Academy.

CROTAPHYTUS, Holbrook.

CROTAPHYTUS FASCIATUS.

Sp. Char. Head of moderate size, triangular, slightly swollen at the temples; body slender; anterior extremities idem; tail nearly three times as long as the body (including neck and extending to vent;) body covered with small granulations, ash colored, with seven or eight narrow transverse bands upon the back of the color of vermilion; bands of a similar color upon the tail; legs banded; abdomen covered with quadrangular scales: flesh-colored; femoral pores in the male very distinct.

Description. The head is subtriangular, rounded in front, slightly swollen at the temples, covered above with polygonal tubercles, larger anteriorly; a row considerably larger than the rest runs along the middle line of the front part of the head, midway between the nostrils; these tubercles are much smaller and of more uniform size upon the temples; they are also small over the orbits; the occipital plate is of moderate size, and rather indistinct; the supraciliary ridges are well developed; the external margin of the eyelid is bordered with a row of quadrangular scales, external to which is another row upon the lower lid, with pointed extremities, presenting a well-marked denticulation; the lids are covered with minute granulations; the nostrils are large, oval, lateral, looking outward and slightly backward, situated in a single scale; the rostral plate is narrow, quadrangular, much more extended transversely than in the vertical direction; the upper jaw is bordered with a row of seventeen plates; the external opening of the ear is very apparent, oval, its anterior border presenting a few small denticulations; neck folded; body slender, covered above with small granulations, rather larger upon the back than upon the sides.; anterior extremities slender; posterior well developed; both covered above with granulations, rather larger in front than posteriorly; several rows of small plates along the margin of the lower jaw; chin and throat covered with small granulations; abdomen covered with smooth hexagonal and quadrangular scales; anterior surface of arms and forearms covered with small granulations; of thighs and legs with scales similar to those upon the abdomen; femoral pores very distinct; no anal ones; tail very long and slender posteriorly, covered with smooth quadrangular scales near its root, hexagonal posteriorly; these scales are distinctly verticillate throughout the greater part of the length of the tail, less so anteriorly, and carinated both anteriorly and posteriorly, except within about two inches of its root; femoral pores very distinct.

Color. Head of the specimen examined of a light yellow color, with numerous small brown spots disseminated upon its surface; a dark colored bar upon the temples, between the orbit and ear; chin and throat marked with dark colored lines and blotches; body ash color above, presenting numerous small points upon its surface, and marked with transverse bars of a vermilion color during life; upper surface of its extremities resembling in color that of the abdomen, the thighs and more especially the legs marked with transverse bands of vermilion; abdomen flesh color; tail ash, beautifully banded with transverse bars of vermilion.

Dimensions. Length of head 10½ lines; greatest breadth 7 lines; length of neck and body 2½ inches; length of tail 6½ inches; of arm 5 lines; of anterior extremity 1 inch 7 lines; length of foot to extremity of longest toe 13 lines.

Habitat. Sand hills, at the lower end of the Jornada del Muerte, New Mexico.

Remarks. This animal, of which there are two specimens, a male and a female, forming part of Dr. Woodhouse's collection, differs from the Crotaphytus Wislizenii of Baird and Girard, in the size and shape of the head: that of Wislizenii being about a quarter of an inch longer; the latter is also broader and the snout less pointed; the neck also in fasciatus is much more contracted, and the body and both anterior and posterior extremities are much less robust. In addition to these distinguishing characteristics, sufficient of themselves to separate the two animals, there exist in fasciatus seven or eight narrow transverse bands of a bright vermilion color upon the back, which are not observed in the other species.

TROPIDONOTUS, Kuhl.

TROPIDONOTUS WOODHOUSII.

Sp. Char. Head long, depressed, rounded in front; eyes projecting; neck much contracted; body thicker in the middle; tail of moderate length; scales strongly carinated; a series of transverse rhomboidal dark colored blotches upon the back, less distinct near the tail, obsolete upon the anterior half of the body; which is of an olive green color; interstices between the blotches white; 23 rows of scales. Abdominal scuta 150; sub-caudal

Description. The head is quite large and much depressed, covered above with nine plates; of these the anterior frontal are pentangular, their posterior and external angle being somewhat prolonged; the posterior frontal are much larger and irregularly quadrilateral; the vertical is pentagonal, much broader in front than posteriorly, its lateral margins being slightly hollowed; the supra-orbitar are oblong, pentagonal, broader behind than in front; the occipital are very large, pentagonal: the rostral is broad and quadrilateral, rounded above, excavated below; the nostrils look upward and outward, and are situated between two nasal plates; there is one loral on each side which is quadrilateral; there are one anterior ocular and three posterior ocular plates; the former is quite large, and excavated anteriorly, so as to receive the posterior margin of the loral; there are two large temporal plates on each side of the occipital; there are eight labials upon the margin of the upper jaw on each side; of these the sixth and seventh are the largest; the eyes are large and projecting, the supraorbitars extending but slightly over the eye; the mental plate is small and triangular; the anterior and posterior geneials are quite long, the posterior somewhat more slender and larger than the anterior; the body is long, much thicker in the middle than at the extremities, covered with twenty-three rows of strongly carinated scales; the rows upon the sides are much less strongly carinated than those upon the back; the row nearest the abdomen is the broadest.

Color. Dusky olive upon the upper part of the head and back, becoming darker upon the middle of the body, and toward the tail, presenting numerous transverse dark colored bands, most distinct upon the posterior half of the body; these bands do not, as in Tropidonotus sipedon, extend as far as the abdomen; they are bordered anteriorly and posteriorly with a strip of white; chin, thorax and neck straw color; the abdominal scales are bordered anteriorly with black; tail, straw color, with indistinct bands of black along the borders of the scales.

Dimensions. Length of head 1 inch 6 lines; greatest breadth 9 lines; length; of body 2 ft. 2 inches; of tail 5½ inches. Abdominal scuta 150; sub-caudal 44, (tail broken off at extremity.)

Habitat. Prairies near the Arkansas river.

Remarks. The reptile above described resembles the Tropidonotus erythrogaster, in having the same number of rows of scales, there being 23 in each; and nearly the same number of abdominal plates, there being 148 in the erythrogaster and 149 in Woodhousii. The tail in the specimen of the latter species having been mutilated, their number could not be accurately determined. The coloration of the two animals, however, is very different, the white transverse bands upon the back being very apparent in Woodhousii, but do not exist in erythrogaster. They differ also greatly in size, Woodhousii being a much smaller animal. Tropidonotus fasciatus has 140 abdominal plates and 42 pairs of sub-caudal scales. The "body has singular oblong or triangular purplish red spots on the flanks, which are insensibly lost about midway between the abdomen and vertebral line." "In old animals the whole superior and lateral surface becomes of a brownish color." Its circumference is five inches.

AMBYSTOMA NEBULOSUM.

Sp. Char. Head as broad as long, rounded in front; palatine teeth in the form of a triangle, the apex directed forward; body brown with numerous yellow spots; tail longer than neck and body; total length 5 inches 9 lines.

Description. The head is large, depressed above, about as broad as it is long; snout rounded; nostrils small, about three lines apart; eyes large and prominent; mouth very large; tongue broad and flattened, free at its edges, attached at its anterior border; palatine teeth ∧ shaped, the angle presenting forward, the extremities of the row being placed a short distance behind the internal nares; neck contracted; posterior extremities stouter than the anterior; body sub-cylindrical, flattened inferiorly; tail longer than the head and body, much more compressed, the posterior half especially, quite thin and rounded at its extremity.

Color. Head brownish above, with numerous indistinct yellowish spots posteriorly: body blackish, presenting many yellowish spots upon the surface, the largest about a line in diameter; extremities blackish, mingled with yellow; tail of some dark hue, with numerous yellow spots and markings; chin, throat and abdomen yellowish.

Habitat. New Mexico.

Dimensions. Length of head 8 lines; greatest breadth 8 lines; length of neck and body 2 inches 2 lines; of tail 2 inches 9 lines; of anterior extremities 1 inch 6 lines; of posterior the same; total length 5 inches 9 lines.

Another specimen from the same locality is more uniformly blackish upon the upper surface, the yellowish spots being absent; the chin, throat and abdomen are also more distinctly marked with black and yellow.

Remarks. The above species differs from the Proserpine of Baird and Girard in the shape of the head and in the coloring; and from Mavortia of Baird in the same particulars. The Mavortia, according to Prof. Baird, has "about nine broad transverse bands of yellowish on the sides of the body, confluent to a certain extent with that of the belly." He describes similar markings upon the tail, forming nearly complete ellipses, about twelve in number. The Mavortia is eight inches in length.

The Committee on the following paper by Dr. Genth, reported in favor of publication in the Proceedings:

On a probably new element with Iridosmine and Platinum, from California.

By Dr. F. A. GENTH.

I received from Dr. Charles M. Wetherill a small quantity of white grains, which were collected in 1849–50 from California gold by the late Jos. R. Reynolds, Esq. An examination of these grains furnished me results which are, perhaps, worth noticing.

I. When treated with boiling hydrochloric acid, two grains began to dissolve with disengagement of hydrogen. As soon as I observed this reaction I picked them out and washed them off with water. With a good magnifying glass I found that they were mechanically mixed with gold. Their color was between a tin-white and steel color; they were malleable, but harder than tin; they dissolved in nitric acid, yielding a crystalline salt, the native gold which was mixed with them remaining undissolved. They precipitated copper from solutions, but slowly. Hydro-sulphuric acid precipitated the solution in nitric acid brown. A pure piece of metal before the blowpipe on charcoal fused readily. It was soon covered with a black oxide and gave no incrustations. Borax in the O. F. dissolved it and gave a colorless bead, which on cooling became opalescent; the same reaction took place more readily in R. F.

The quantity of this metal was too small for further experiment, but these reactions show that it is neither tin nor any other known element, although it has some relations to tin, but it is distinguished from it

1. By its solubility in nitric acid.
2. By its brown precipitate with hydrosulphuric acid.
3. By not being regularly oxydized before the blowpipe into a white Oxide, and by its other blowpipe-reactions.

May not the grains of native tin observed by Hermann in the auriferous sands from Siberia be the same substance?

II. An examination of the white grains which were insoluble in hydrochloric acid, gave (after a few scales of native gold had been extracted by quite diluted aqua regia) the following results.

Of 0·9366 grms. were 0·4625 grms. or 49·4 p. c. Sisserskite (Ir Os_4) in brilliant lead colored scales, some of which were imperfect six-sided prisms.

The remaining grains and scales (0·4741 grms.) had a tin-white color, and were treated with aqua regia, as long as it acted upon them. Three rounded grains remained undissolved in aqua regia, which, I suppose, were Platin-Iridium. They weighed 0·0202 grs.=2·2 p. c.

The balance of 0·4539 grms. or 48·4 p. c. were native Platinum.

The composition of the sample received by Dr. Chas. M. Wetherill was therefore
New Element and gold not estimated.
Sisserskite = 49·4 p. c.
Platin-Iridium = 2·2 p. c.
Native Platinum = 48·4 p. c.

This native Platinum is not pure, but contains, like that from other localities, other substances, both alloyed and mechanically mixed with it.

When the 0.4539 grms. were dissolved in aqua regia, 0·0031 grms. or 0.68 p. c. of Sisserskite remained undissolved in minute and fine scales.

The solution was evaporated to dryness in a water-bath, dissolved in alcohol and precipitated with chloride of ammonium. The brick-red double salt thus formed was washed out with alcohol, then dried and powerfully healed. The ignited residue weighed 0·4206 grms. It was treated with weak aqua regia, which left undissolved 0·0110 grms. of Iridium and Rhodium = 2·42 p. c. (This is of course only an approximate estimation of Iridium, etc.) This presence of Rhodium and Palladium was also ascertained, but I did not make any quantitative estimations, because the quantity I had to dispose of was entirely too small for the estimation of substances which can be separated only with the greatest difficulty.

The filtrate from the double salts of Platinum, etc., precipitated by ammonia gave 0·0432 grms. of sexqui-oxide of iron = 6·66 p. c. of iron.

The composition of this native Platinum is therefore
Platinum, (with Palladium) = 90·24
Iridium, (with Rhodium) = 2·42
Iron, = 6·66
Sisserskite, = 0·68
100·00

The Committee on a paper by Dr. P. R. Hoy, "On new Species of Owls," reported in favor of publication in the Proceedings.

Description of two species of Owls, presumed to be new, which inhabit the State of Wisconsin.

By PHILO R. HOY, M. D., Racine, Wisconsin.

1. *Nyctale Kirtlandii*, nobis.

The smallest described species of this genus.

Male. Length 6½, ext. 16, tail extends to the tip of the folded wing. Head and entire upper parts brown with a reddish gloss. Plumage around the base of the tail and eyebrows white, immediately in front of the eye, intermingled with black bristles; from the base of the lower mandible two short stripes of white run downwards and backwards. Lores pitch black. Wings brown, inferior wing coverts, and edge of wing at flexure, white; primaries with three or four narrow spots of silky white on their outer margins, and all the quills with circular spots of white on their inner webs. Tail brown, narrowly tipped with white and crossed with two bands composed of spots of white, which are wanting on the outer webs of the two lateral feathers. Throat and upper part of the breast dark chesnut; all the under parts bright reddish yellow, tarsi and toes thickly covered with plumage of the same reddish yellow as the under parts. Bill and claws black, irides golden yellow.

But two specimens of this bird have been taken to my knowledge; the first was captured Oct., 1821, and kept until winter when it made its escape; the second, and the one from which the above description was taken, flew into an open shop, July, 1852. It is strictly nocturnal, utters a low tremulous note, and is an active and efficient mouser. It is different from any other species yet known to inhabit North America, and appears to have some general resemblance in color to *N. Harrisii*, Cassin, but not sufficient to render it necessary to state their difference.

I have named this species as a slight tribute of respect to that zealous Naturalist, Prof. Jared P. Kirtland, of Cleveland, Ohio.

2. *Bubo subarcticus*, nobis.

A large light colored species. Tail crossed by five bands, wings with the third primary longest, second shorter than the fourth, tooth or lobe of the upper mandible remarkably developed.

Total length 24 inches, wing from flexure 17, tail 9½, and extends 3½ beyond the folded wings, tarsus 2½, bill over its convexity 1 5-12ths, egrets 3 inches.

Above white and fawn color, zig-zagged and barred with brown, scapulars broadly marked on their outer webs with white. Tail bright fawn, crossed by five bars of brown, outer webs of the exterior and tips white, two central feathers colored similar to the back. Quills with seven bars of brown.

Beneath white; on the breast, sides, and flanks, each feather crossed with bars and narrow stripes of deep brown, forming on the breast a wide irregular band of the latter color. Lower tail coverts white, each feather with a single narrow band of brown.

Face greyish white, lores tipped with black, egrets with their outer webs and tips black, inner webs white, bill dark horn color, lighter at the point, claws black, irides yellow.

The specimen now described was shot in January, 1851, near this city, and proved to be a female. I have seen two others which were precisely similar in their markings to the present. This species does not agree in many essential points with Richardson's description of the Arctic horned Owl, nor does it agree either in color or anatomically with the common great horned owl, which is very abundant here, and of which I have kept living specimens for more than a year. Of the latter species I have seen some very dark colored specimens, which are mostly, but not invariably, male birds.

Some of my reasons for considering the bird just described as distinct from the common species, are as follows: It differs, 1. In color and markings. 2. In measurements; it has comparatively greater length of tail, and of wings. Anatomically; the cranium of a specimen in my possession, shows a greater development of the posterior lobes of the brain and other differences, and a more distinct tooth-like lobe of the upper mandible. 4. I have seen three specimens all corresponding in every particular, and all occurring only in the depth of winter, when the great Cinereous Owl, (*Syrnium cinereum*,) the Hawk Owl, (*Surnia funerea*.) and the Snowy Owl, (*S. nyctea*,) were with us. My conclusion is, therefore, that it is like these species, an inhabitant of the Arctic regions of this continent, and one of the rarest of the winter visitants in the northern parts of the United States, and in Wisconsin is much less common than either of the three species mentioned.

The Committee to which had been referred Dr. Wetherill's paper entitled "An Analysis of the Cotton Plant and Seed," &c., reported in

favor of the publication of the following abstract of the same in the Proceedings:

Analysis of the Cotton Plant and Seed.

By the late THOMAS J. SUMMER, Esq. of South Carolina. Communicated by Dr CHARLES M. WETHERILL.

In a communication on the analysis of the ash of a cotton stalk by Mr. Judd, in the Proceedings of the American Association for the Advancement of Science, p. 219, surprise is expressed at the absence of published analyses of the cotton plant, with the exception of one of the wood and another of the seed, by Prof. Shepard. I owe it to the memory of my friend and classmate in Giessen, the late Thomas J. Summer, Esq., to communicate the following analytical results arrived at by him while in the Giessen laboratory, and which have not been published, that I am aware of, except in pamphlet form for circulation among his friends:

Analysis of the Ash of the Cotton Plant.

The analysis was carried on in the usual manner—6.181 grammes were digested with muriatic acid, and evaporated to dryness by the water bath. After moistening with acid and adding water, the insoluble portion was separated, which consisted of 0·621 sand and coal, and 0·403 silicia. The filtrate was divided into three equal parts. In the first, the iron, in combination with phosphoric acid, lime and magnesia, was determined. In the second, sulphuric and phosphoric acids. In the third, the alkalies.

The following are the per centage results:

	6·181 grammes	Percentage.
Potassa	1·365	22.08
Soda,	0·06	0.97
Lime,	1·082	17.50
Magnesia,	0·324	5·24
Oxide of iron,	0·444	7.18
Phosphoric acid,	0·849	13.73
Sulphuric acid,	0·081	1.31
Chloride of Sodium,	0·037	0.59
Silicia,	0.403	6.52
Carbonic acid, 1·066, ash gave	0·168	15.76
Sand and coal,	0·621	10.04
		100.92

The Ash of the Seed.

The seeds were burned in a muffle; only a slight red heat was necessary to burn them perfectly white.

For estimating the amount of water 6.406 grammes of seed, dried at 212^{c}, lost 0·646, or ten per cent. water; 6.587 of the dried seed left by incineration in a platinum crucible, 0.237, or 3·6 per cent. ash. The qualitative analysis showed the same constituents as in the ash of the plant, with the exception of carbonic acid. The following are the analytical results:

	Percentage.
Potassa,	27.82
Soda,	2.75
Lime,	10.88
Magnesia,	10.61
Oxide of iron,	3.43
Phosphoric acid,	35.42
Sulphuric acid,	3.19
Coal,	1.05
Traces of Silica, Loss and Cholorine,	4.84
	100.00

An inspection of the above analysis of the cotton seed shows that it abounds in the phosphates and alkalies. Drs. Will and Fresenius, in their analysis of the cereal grains, show that wheat also abounds largely in these constituents. The following analysis, as above quoted, will enable the comparison to be made:

	Red Wheat.	White Wheat.
Potassa,	20.80	30.17
Soda,	15.01	
Lime,	1.83	2.76
Magnesia,	9.12	12.08
Oxide of iron,	1.29	0.28
Phosphoric acid,	46.91	43.89
Silica,	0.15	
Coal and sand,	4.89	9.03
	100.00	100.00

These constituents being derived directly from the soil, plainly indicate the reasons why the land in the South is so readily exhausted. The crops extensively cultivated there, all require, in a great measure, the same food from the soil; and hence, soils which will not produce cotton are alike incapable of producing the cereal crops. The great benefit derived from the application of cotton seed as a manure, to these crops, is accounted for from the same causes, in their abundance of alkalies and phosphates. In connection with the assimilation of alkaline phosphates by plants, the experiments of Dumas on the solution of bones by water charged with carbonic acid, as detailed in a memoir "on the manner in which phosphate of lime enters organized beings," (Comptes Rendus, Nov. 30, 1846,) are interesting. He remarks that the phosphate of lime, though insoluble in water, nevertheless penetrates through bones, and is deposited in their structure, and that, on the other hand, bones are slowly disaggregated by the soil and disappear after a time. This is owing, according to Dumas, to two causes, the one, sal-ammoniac acting rarely and feebly, the other, carbonic acid, acting constantly and rapidly. Plates of ivory introduced by Dumas into bottles of Seltzer water, were as much softened after twenty-four hours as if they had been acted on by dilute muriatic acid; and the Seltzer water was found loaded with phosphate of lime. I would call attention to this property of carbonic acid as satisfactorily explaining the assimilation of the phosphate of lime by plants. The carbonic acid given off in the fermentation of the manure greatly facilitates the solution of phosphate of lime when present as bone ash.

It was a matter of surprise to Prof. Liebig that soils not furnished artificially with the preponderating constituents of the cotton plant and seed, should produce a crop abounding in the phosphates. This leads me to further investigation, and a rich field of research lies still unexplored in the analytical examination of the cotton soils of the South and West.

THOMAS J. SUMMER.

South Carolina, 1848.

It is indeed a matter of surprise that an article of such world-wide necessity should have been hitherto so neglected by agricultural chemists, and indeed I am not aware that we have even now an analysis in full of the ash of the whole plant. The two best analyses are those of the stalk by Summer and Judd. The analysis of the seed by Summer contains an error of loss and Chlorine = 4.84 p. c. The same analysis (of seed) by Shepard, gives an error of 1.68 p. c. of loss, Carbonate of potassa, Sulphates of Lime and Magnesia, Alumina and Sesquioxide of Iron; and Shepard's analyses are calculated with regard to the composition of the *ash* itself, instead of giving the constituents separately, which alone renders a comparison between different analyses possible, the composition of ash varying according to the nature and quantity of its constituents, and the degree of heat at which it is prepared. I have recalculated Summer's analysis of the stalk by Weber's new analytical Tables; want of data in the seed analysis rendered its recalculation impossible. I have also recalculated Summer's analysis to the hundred parts, neglecting Sand, Coal and Silica; and having separated the salts in Shepard's analysis, I recalculated the constituents in the same manner. The following table will show the comparative nature of the constituents of the ash of the plant, seed and wool, as analysed by Shepard, Summer and Judd; the defective analyses above mentioned considered as approximative:

Constituents of the Ash of the Cotton Plant.	Stalk.		Seed.		Wool.
	Summer.	Judd.	Summer.	Shepard.	Shepard.
Potassa	29·40	29·58	29·56	20·04	44·00
Soda	1·29	—	2·92	—	—
Zinc	23·30	24·34	11·56	27·84	22·43
Magnesia . . .	6·97	3·73	11·27	0·13	4·45
Oxide of Iron . . .	9·56	—	—	—	—
Alumina	—	—	—	—	1·94
Phos. Acid . . .	18·28	34·92	37·65	48·92	19·63
Sulph. Acid . . .	1·74	3·54	3·39	1·24	1·84
Chloride Sodium . .	0·79	—	—	—	—
Silica	8·65	3·24	—	1·71	5.71
Chlorine . . .	—	0·65	—	0·12	—
	100.00	100·00	100·00	100·00	100·00

The Report of the Corresponding Secretary was read and adopted.
The Recording Secretary then read the following

ANNUAL REPORT.

From the 1st of January to the 1st of December, 1852, there have been elected thirty-three Members and eight Correspondents; four Members have died.

Besides numerous interesting minor and verbal communications, the following have been presented, during the past year, and reported on for publication in the Journal and Proceedings of the Academy.

By Audubon and Bachman. Description of a new North American Fox.

By Spencer F. Baird and Charles Girard, four, to wit: Characteristics of some new Reptiles in the Museum of the Smithsonian Institution, three papers; Descriptions of a new species of Reptiles, collected by the United States Exploring Expedition.

By John L. Burtt, M. D. On the Influence of Sulphuretted Hydrogen, arising from the bottom of the bay of Callao, on the fishes inhabiting its waters.

By Mr. John Cassin, two, to wit: Catalogue of the Halcyonidæ in the Collection of the Academy of Natural Sciences of Philadelphia; Descriptions of new species of Birds, specimens of which are in the Collection of the Academy of Natural Sciences of Philadelphia.

By Mr. T. Conrad, three, to wit: Description of the new Fossil shells of the United States, (published in the Journal.) Remarks on the Tertiary Strata of St. Domingo, and of Vicksburg, Miss.; Notes on shells with Descriptions of new species.

By Mr. James D. Dana, three, to wit: Conspectus Crustaceorum quæ in Orbis Terrarum Circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fæderatæ duce, lexit et descripsit J. D. Dana, three papers.

By James C. Fisher, M. D. On the Aurora of February 19th, 1852.

By Henry A. Ford, M. D. Characteristics of the Troglodytes gorilla.

By Frederick A. Genth, Ph. D., four, to wit: On some Minerals which accompany gold in California; On Strontiano-Calcite, a new Mineral; On Rodophyllite, a new Mineral; On a probably new Element with Iridosmine and Platinum, from California.

By Mr. Charles Girard. Additions to a former paper on the North American Astaci.

By Edward Hallowell, M. D., five, to wit: Descriptions of new species of Reptiles from Western Africa; Descriptions of new species of Reptiles inhabiting North America; Descriptions of new species of Reptiles from Oregon Territory; On a new genus and three new species of Reptiles, inhabiting North America; On a new genus and two new species of African Serpents.

By Adolphus L. Heermann, M. D.: Notes on the birds of California, (published in the Journal.)

By P. R. Hoy, M. D. Descriptions of two species of Owls, presumed to be new, inhabiting the State of Wisconsin during the winter season.

By the Rev. Lorenzo L. Langstroth. On the Impregnation of the eggs of the Queen Bee.

By Mr. Isaac Lea, four, to wit: Description of a new species of Symphynote Unio; Description of a Fossil Saurian of the new Red Sandstone of Pennsylvania, with some account of the formation; On some new Fossil Molluscs in the Carboniferous slates of the Anthracite seams of the Wilkesbarre Coal Formation; Description of a new species of Eschara from the Eocene of Alabama.

By John L. Le Conte, M. D., fifteen, to wit: Notice of Fossil Dicotyles from Missouri; Notes on some Fossil Suiline Pachyderms from Illinois; Hints towards a natural classification of the Family Histrini of Coleopterous Insects; Synopsis of the Parnidæ of the United States; Synopsis of the Eucnemidæ of temperate North America; On the difference between Primordial Races and Introduced Races; Remarks on some Coleopterous Insects collected by S. W. Woodhouse, M. D., in Arkansas and New Mexico; Synopsis of the Anthracites of the United States; Synopsis of the species of Pterosticus Bon. and allied genera, inhabiting temperate North America, (published in the Journal.) Remarks on the Coccinellidæ of the United States; Description of a new species of Trombidium; Description of a new species of Sciurus; Catalogue of the Melyrides of the United States, with descriptions of a new species; Synopsis of the Scydmenidæ of the United States; An attempt at a synopsis of the genus Geomys, Raf.

By Joseph Leidy, M. D. On the Osteology of the Head of the Hippopotamus, with a description of the Osteological Characters of a new Genus of Hippopotamidæ, (published in the Journal.)

By Col. George A. McCall, U. S. A. Description of a new species of Carpodacus.

By David Dale Owen, M. D. Notice of a Mineral from California, probably new.

By Mr. M. Tuomey. Description of some Fossil shells from the Tertiary of the Southern States.

By Charles M. Wetherill, Ph. D., five, to wit: Examination of the Molybdate of Lead from the Wheatley Mine, near Phœnixville, Pennsylvania; Chemical investigation of the Mexican Honey Ant; Further examination of the Phœnixville Molybdate of Lead; Chemical examination of the Food of the Queen Bee; Analysis of the Cotton Plant and Seed, &c., by the late Thomas J. Summer, with additions, by Charles M. Wetherill.

By S. W. Woodhouse, M. D., six, to wit: Descriptions of new species of Birds of the Genera Vireo, Vieill., and Zonotrichia, Swainson; Description of a new species of Ectopistes; Description of a new species of Sciurus; Description of a new species of Numenius; Descriptions of two new species of pouched Rats; Description of a new species of Struthus.

In all sixty-two papers.

In addition to the above, in accordance with a Resolution, adopted September 30th, 1851, Dr. Ruschenberger read on the evenings of February 3d and 10th, an exceedingly interesting, accurate and elaborate "Notice of the Origin, Progress and present condition of the Academy of Natural Sciences of Philadelphia," which was subsequently published by the Society.

In conclusion, the Recording Secretary congratulates his fellow members upon the continued harmony, activity and prosperity of the Society. In no former year has so large a number of communications been presented, the number of members has been greatly increased, and the attendance at the meetings full, while there has been displayed by those present, every evidence of zealous desire to forward the cause of science, cherish the interests and sustain the reputation of the Academy.

All of which is respectfully submitted by

B. HOWARD RAND, Recording Secretary.

Philadelphia, Dec. 28th, 1852.

The Librarian presented the following

REPORT FOR 1852.

Since the 1st of January last, 1706 volumes, 889 periodicals, and 291 pamphlets have been added to the Library. The character and variety of the additions, with the number of each under their respective heads, are shown in the annexed table:

SUBJECT.	Volumes.	Periodicals.	Pamphlets.	SUBJECT.	Volumes.	Periodicals.	Pamphlets.
Gen. Nat. History and Mammalogy	346	84	38	Brought over	1380	887	344
Ornithology	41	51	15	Voyages and Travels	104	3	3
Herpetology	14		4	History and Geography	51		1
Ichthylogy	33		13	Phys. Science and Chemistry	72		11
Entomology and Helminthology	167	154	31	Agriculture	15		4
Conchology	29	33	16	Medicine	16		5
Botany	46	25	6	Languages and Bibliography	20		
Geology and Mineralogy	169	46	73	Biography	9		3
Anatomy and Physiology	158	24	48	Dictionaries of Arts and Sciences	10		
Proceedings, Journals, Annals, Memoirs, &c. of Societies	377	470		Miscellaneous	29		20
				Total	1706	889	291
Carried over	1380	887	244	Charts	11		

Of the above, 57 have been received from Authors, 34 from Editors, 90 from Societies, Corporations, &c., 834 from D. T. B. Wilson, 1767 from Edward Wilson, Esq., 98 from other Members and Correspondents, and from miscellaneous sources, and 6 from the U. S. Government; making a total of 2886 additions to the Library in 1852.

From our fellow-member, Mr. Elias Durand, we have also received 109 autographs of distinguished scientific and literary men.

The excess in the increase of volumes this year over that of the last is 631. In 1851, the Library was increased 1075 volumes; in 1850, 1719 volumes; in 1849, 789 volumes; in 1848, 652 volumes; and in 1847, 630 volumes; making a total increase in six years of 6571. Many periodicals, also, in course of publition during these years, and recorded as such in our lists of donations to the Library, have since been bound into volumes, the number of which may be estimated at about 700; and added to the above give a total of nearly 7300 volumes contributed to the Society's Library in that short period.

In the report submitted to the Academy in December, 1850, the number of volumes in the Library at that time, as ascertained by actual enumeration, was 12,057. If to these be added those since received, with the proportion of volumes of periodicals bound in that time, the number on our shelves at present exceeds 15,000.

Nearly all the additions in the six years above referred to, have been gifts from individuals or Societies, or in exchange for our own publications, very little money having been expended.

The rich and costly collection which surrounds us, like that in our noble Museum, affording instruction and delight not to ourselves alone, but to numerous inquirers after knowledge beyond our own limits, is therefore made up almost entirely of spontaneous offerings, prompted by disinterested generosity or a love for science. Let us not lose sight of this fact; it cannot be too often referred to, or too strongly impressed upon us. Every means in our power should be employed to protect such valuable trusts from abuse and loss. The plausible pretender to science, the inconsiderate idler and the pilferer, should find no encouragement within these walls.

The present accommodations for the books have become too limited to admit of their proper arrangement, or of easy access to them. For the last few months inconvenience has been experienced to an annoying extent from some of the cases being crowded to excess. Many plans have been suggested with a view to remedy this evil, all of which, however, were of too temporary a character to admit of adoption.

It is now, however, proposed to remove to the Hall above, as soon as appropriate places can be prepared for them, the entire collections in Mineralogy, Conchology, Herpetology, &c., at present contained in the basement apartment adjoining the Library, and to convert the latter into a library room. The area of this apartment is nearly equal to that now occupied for library purposes, and may be estimated to be sufficient to accommodate at least 10,000 additional volumes. The basement of the building would then, with the exception of one room, (which must be retained for the reception and unpacking of parcels, boxes, &c.,) be occupied by the library, and the great advantage gained, which has been so long desired, of keeping it isolated or distinct from the Museum.

The statement above presented is in every respect gratifying, and the Society may be congratulated, as on every occasion like the present for the last few years, on the rapid and steady advancement in this department—the most important, perhaps, in the Institution—affording the best evidence of the favor in which the latter is everywhere held, and the unceasing liberality of its friends and supporters. The Academy of Natural Sciences may justly boast that in this age of progress it has not been left behind. It is, and has been, since its origin, with few exceptions, progressive; partly owing, doubtless, to its intrinsic merit, but mainly to a succession of advantageous circumstances operating in its favor. Its benefactors have been open-handed to an extent heretofore unknown in institutions of this nature in our country. The names of Maclure and Wilson, especially, will never be mentioned without regard and admiration. Through their instrumentality, in a great measure, the Institution now rests upon a firm and solid basis; its endurance will depend not merely upon the intelligence, zeal and industry of those who succeed us here, but also upon a proper appreciation by them of the true and legitimate objects of its founders. No misgivings, however, need be entertained on this head. At no period in its history have the prospects been more encouraging than at present, of its high scientific reputation being fully maintained, and of its utility and advantages to the community being generally recognised as a great centre for the increase of knowledge.

Wm. S. Zantzinger, Librarian.

Hall of the Academy, Dec. 28, 1852.

The Annual Report of the Treasurer was read and referred to the Auditors.

The report of the Curators was then read, as follows:

REPORT OF THE CURATORS FOR 1852.

Since the last annual report of the Curators was presented to the Academy, very considerable additions have been made to its Museum, which, we are happy to state, continues in a good state of preservation. Latterly the Cabinet has sustained several losses by the abstraction of valuable specimens, but the circumstance having excited the attention of the Curators, means have been resorted to, which we hope will prevent further depredation.

During the year, the different departments of the Museum have received the following donations:

Mammalia.—Of this class there have been presented the skins of 35 specimens of 25 species, principally from Dr. D. Leasure, Drs. A. L. Heermann, E. K. Kane, J. L. Le Conte, S. W. Woodhouse, Mr. J. D. Sergeant and Col. G. A. McCall.

Aves.—Of bird-skins 94 specimens of about 60 species have been received. The principal donors are Drs. H. G. Dalton, E. K. Kane, A. A. Henderson, T. Carlton Henry, W. S. W. Ruschenberger, Messrs. E. H. Kern, J. D. Sergeant, G. N. Lawrence, J. Lambert, G. A. McCall. Part of the number formed the collection made in Lieut. Lynch's Expedition to the Dead Sea, and was presented by order of the Secretary of the Navy.

Besides the above, numerous species have been deposited by Dr. Wilson, of which no official record has been given to the Curators.

Of birds' eggs, a large number of specimens of about 40 species, have been presented by Messrs. John Krider, E. Wilson, and A. L. Heermann.

Reptilia.—Of this class 100 specimens have been presented, chiefly by Messrs. H. A. Ford, A. L. Heermann, G. Watson, B. F. Shumard, J. Le Conte, G. W. Fahnestock, G. A. McCall, J. Krider and E. Harris. The species are from different parts of the world, and a number of them from Africa and the western part of Nerth America, are new, and have been recently described in the Proceedings of the Academy by Dr. Hallowell.

Pisces.—Of fishes 58 specimens of 35 species have been presented by Messrs. G. W. Fahnestock, Edw. Wilson, A. A. Henderson, E. Harris, J. Le Conte and T. Conrad. Among the number are several specimens of the curious Branchiostoma.

Mollusca.—In this department the Cabinet has received an addition of numerous specimens of 80 species of shells, chiefly from Messrs. Edw. Wilson, S. Handy, J. Krider and J. L. Burtt.

Crustacea.—In this department we have reaped a rich harvest.

190 specimens of 54 species of British Crustacea were presented by Edward Wilson, Esq.

282 species of 136 genera, from the collection of M. Guerin Meneville, have been received from Dr. T. B. Wilson. This collection is particularly valuable, on account of the great number of minute and rare species from all parts of the globe, which it contains.

Besides the above, M. J. Verreaux, of Paris, has presented 36 specimens of 14 species, and 112 specimens of about 50 species were received from Messrs. Edw. Wilson, S. Ashmead, J. Le Conte, and others.

Insecta.—600 specimens of the various orders of insects have been presented principally by Messrs. A. L. Heermann, H. G. Dalton, S. S. Haldeman.

Arachnida, Annelida and Myriapoda.—Of these 49 species have been received from Messrs. Edward Wilson, R. H. Kern, R. E. Peterson, and others.

Zoophyta.—178 specimens have been presented by Messrs. Edward Wilson, T. B. Wilson, W. S. W. Ruschenberger, F. S. Holmes, and others.

Comparative Anatomy.—A magnificent skeleton of the Troglodytes gorilla, *Savage*, was presented by Dr. Henry A. Ford, of Liberia, and a specimen believed to be unique, of the skeleton of Chœrodes Liberiensis, *Leidy*, has been received from Dr. T. B. Wilson.

Besides the foregoing, 49 crania of mammals, birds and reptiles, 17 skeletons of birds, and 58 miscellaneous specimens have been presented by Messrs. J. Verreaux, De la Berge, A. L. Heermann, G. P. Oliver, B. H. Coates, Amory Edwards, W. Wood, A. Janney, and others.

Botany.—The herbarium has been increased by the addition of a number of valuable specimens.

Major J. Le Conte presented his entire collection of North American plants, made through the course of many years.

Other collections of Phænerogamous plants have been presented by the Rev. M. A. Curtis, of South Carolina, Dr. A. L. Heermann, Mr. R. H. Kern, and Dr. Engelmann, of St. Louis.

Of fruits, lichens, marine algæ, &c. we have received 96 specimens from Messrs. S. Ashmead, G. W. Fahnestock, J. C. Trautwine, E. K. Kane, and others.

Palæontology.—An interesting collection of minute crag fossils of England, consisting of 41 species, was presented by Dr. T. B. Wilson.

Dr. J. L. LeConte has presented the unique fossils upon which were established the Dicotyles depressifrons, D. cristatus, Procyon priscus, Protochœrus prismaticus, and Anomodon Snyderi.

Dr. Isaac Hays presented an interesting specimen, upon which has been proposed the Tapirus Haysii.

Besides the above, 219 specimens of organic remains have been presented by Messrs. D. D. Owen, Thomas Fisher, A. Jessup, R. Kilvington, C. Wistar, C. H. Budd, J. L. Burtt, Leidy, Wetherill, H. W. Kennedy, Spackman, and others.

Mineralogy.—83 specimens of minerals have been presented by Messrs. W. D. Hartmann, S. Ashmead, W. S. Vaux, T. Fisher, C. M. Wheatley and J. L. Burtt. Among the specimens is a beautiful piece of crystalline native copper, one and a half feet in length, from Lake Superior, the donor of which is Mr. R. A. Hoopes.

In conclusion, the Curators respectfully call upon the members to co-operate in the endeavors now being made to raise a fund sufficient to increase the capacity of the Museum to an extent demanded by its collections; and they hope, at the next annual meeting, to be able to report that ample space has been provided for the accommodation of any future additions to the Cabinet.

JOSEPH LEIDY, Chairman of the Curators.

The Committee on Proceedings presented the following

REPORT:

The "Proceedings" of the Academy, the publication of which was commenced more than ten years since, has increased gradually in importance, and now commands respect abroad, from the value and diversity of its contents. It is quoted by kindred journals, and seems to be regarded as authority.

The members of the Academy are respectfully invited to consider the value of this publication.

To make widely known the labors of the members of the Academy is, in its influence on the prosperity of the Institution, and on the increase of knowledge, second only to those labors themselves. Discoveries in natural history are valuable in proportion to the number of persons to whom they may be made known. While a knowledge of new facts is limited to the discoverer and his companions, science gains little and society is scarcely benefited by the toils of research. It is not necessary to enlarge on this point; every one is aware that while sight and hearing place external things in relation with us, it is voice which places us in relation with external things.

The Journal of the Proceedings, and the Journal of the Academy, are the vocal organs, the voice of the Institution, through the medium of which all the facts it acquires, and all the opinions it forms, are promulgated. These publications are a sure means of making known the results of our investigations and studies, and, consequently, our existence as a corporate body. Through them alone the Academy is placed in communication with analogous Institutions at distant points of our own country and in foreign lands. To these publications the Academy is indebted for its reputation, a wide-spread appreciation of its importance, and also for much of what is contained in the Library and in the Museum.

While we refer with satisfaction to the quantity and quality of information placed on record and printed in the Proceedings, and may be excused, perhaps, for believing that this journal is not surpassed, if equalled, by any similar publication in the United States, it may be well to disclose the fact that it does not receive, even from members of the Academy, all the substantial support and encouragement which are necessary to its prosperity.

When it is known that the subscription price of a copy of the Proceedings for one year is only one dollar, it is hoped this statement will be sufficient to cause every member to contribute towards diminishing the charge upon the Treasury, by becoming a subscriber himself, and by inducing others to subscribe whenever proper opportunity offers.

The whole is submitted on behalf of the Committee on Proceedings,

W. S. W. RUSCHENBERGER,

Hall of the Academy, Dec. 28, 1852.

Dr. Fisher, from the Committee on Mammalogy, reported that 123 skins of mammalia had been mounted and added to the collection, at an expense of $289, which had been defrayed by the following named members: Edward Harris, J. Price Wetherill, Charles D. Meigs, John K. Mitchell, George W. Carpenter, William S. Vaux, Joseph Carson, Jos. Pancoast, P. B. Goddard, Robert Pearsall, Wm. E. Horner, Isaac Lea, Thomas D. Mütter, George B. Wood, Wm. Parker Foulke, Charles Lennig, Thos. B. Wilson, W. S. W. Ruschenberger, B. H. Coates, Samuel Ashmead, R. E. Peterson, R. Bridges, Jas. C. Fisher.

Dr. Woodhouse requested that the following correction be published in the Proceedings:

Having discovered that the specific name *dorsalis*, which I applied to the squirrel brought by me from New Mexico, and which I described in the Proceedings of the Academy for June last (page 110,) has already been applied by J. E. Gray to one of the same genus, I propose now to call it SCIURUS ABERTI, after Colonel J. J. Abert, chief of the corps of Topographical Engineers, U. S. Army, to whose exertions science is much indebted.

he Academy then went into an election for Officers for 1853; a from Mr. John Cassin having been first read, declining a re-elec- as Corresponding Secretary. The following result was announced he Chairman:

ident,	GEORGE ORD.
Presidents,	J. Price Wetherill, Robert Bridges, M.D.
esponding Secretary,	John L. LeConte, M.D.
rding Secretary,	B. Howard Rand, M.D.
arian,	Wm. S. Zantzinger,
surer,	George W. Carpenter.
ators,	Joseph Leidy, M.D. William S. Vaux, John Cassin, Samuel Ashmead,
itors,	Robert Pearsall, A. L. Elwyn, James C. Fisher.
lication Committee,	William S. Vaux, Robert Bridges, Thomas B. Wilson, Isaac Lea, W. S. W. Ruschenberger.

ELECTION.

ohn D. White, M. D., of Philadelphia, was elected a *Member* of the demy.

January 4*th*, 1853.

MR. ORD, President, in the Chair.

A letter was read from the Hon. J. P. Kennedy, Secretary of the Navy, dated Navy Department, Washington, Dec. 25th, 1852, acknowledging the receipt of a copy of the Preamble and Resolutions adopted by the Academy on the 14th of that month, approving the recommendations and suggestions contained in his recent report to the President, and his efforts for "the encouragement of missions tending to promote scientific researches in our own and other countries."

The Secretary also expresses to the Academy "his peculiar pleasure in taking advantage of the opportunity to signalize, by an official commendation, the meritorious labors of their fellow member Dr. Kane, and to enable him, with such aid as he could bestow, once more to embark upon a sea of adventure, in which his philanthropy and love of science have already won him equal and imperishable honor: and also trusted, that with the support of the Academy, and the countenance of the Government, he would return after his second Expedition to the Arctic Circle, with new claims to the congratulations of his friends, and the applause of his country."

A letter was read from Mr. J. P. Lapham, dated Milwaukie, Wisconsin, Dec. 16, 1852, offering to exchange specimens of objects of Natural History for copies of the Journal and Proceedings. Referred to the Publication Committee and the Curators, with power to act.

January 11*th*.

Mr. ORD, President, in the Chair.

A communication was read from the Geological Society of London, dated Nov. 4th, 1852, acknowledging the receipt of late numbers of the Proceedings.

A communication was also read from Prof. Frazer, Chairman of a Committee appointed by the American Philosophical Society, "to act in concert with Dr. Kane, and such societies as have determined to act in concert with him, in carrying out the scientific objects of the projected Arctic Expedition," dated 30th Dec. 1852, expressing the desire of the Committee to give their assistance in any plan for forwarding the objects of the Expedition, which the Academy might think proper to suggest. Referred to the Committee previously appointed on this subject.

Dr. Le Conte read a paper intended for publication in the Proceedings of the Academy, entitled "Descriptions of twenty new species of Coleoptera inhabiting the United States;" which was referred to Dr. Zantzinger, Dr. Pickering and Dr. Leidy.

Dr. Woodhouse presented a paper for publication in the Proceedings, describing a new species of pouched Rat, of the genus Dipodomys, Gray; which was referred to Dr. Bridges, Dr. Le Conte and Mr. Cassin.

Dr. Le Conte offered some remarks on the genus Dipodomys, and stated that he had recently been investigating the specimens of that interesting genus in the Collection of the Academy, and had come to the conclusion that it contained several species besides those already known. The fortunate arrival of an undoubted specimen of D. Phillipii (Gray) from California, and which, by the liberality of Dr. Heermann, is now in the possession of the Academy, has enabled him to complete the study of this genus, and the results will soon be made known to the Academy in a monograph, now in preparation by himself, on the North American Myoxina.

He exhibited to the members five species of Dipodomys, and pointed out their specific characters, which are to be found in the length and color of the tail, and in the form of the antitragus of the ears. In other respects, both in form and color, the species resemble each other very closely. These differences, he stated, could not be the result of age, as the specimens, with one exception, were full grown; he stated, moreover, that the specific differences were similar to those found in the genus Myoxus, to which, by the form of the scull, and by the absence of the postorbital process, the genera Dipodomys and Perognathus show the closest resemblance. With the group of Dipoda, in which the former genus is placed by European systematists, these genera have no relation. The five species known to him may be thus grouped.

A. Tail much longer than the head and body, furnished towards the tip with a brush of long hairs; antitragus short, broad and very distinct.

1. D. Phillipii Gray, Ann. and Mag. Nat. Hist. 7, 522: Audubon, Quadr. of America, pl. 130: Wagner, Schreber's Saügeth: Suppl. 3, 295. Schintz, Syn. Mam. 2, 93.

Tail brown, with a whitish vitta each side; outer third dark blackish brown; tip pure white. Sacramento Valley; Dr. Heermann.

2. D. agilis Gambel, Proceedings Acad. Nat. Sc., 4, 77.

Tail brownish, with an indistinct whitish vitta each side; outer third to tip nearly uniform pale brown. San Diego; Dr. John L. Le Conte.

B. Tail as long as the head and body; hair at the tip scarcely longer; antitragus very short, indistinct.

3. D. Heermanni. Tail brown, becoming black towards the extremity, with a broad white vitta each side; tip pure black. Sierra Nevada; Dr. Heermann. (Specimen not quite adult.)

C. Tail shorter than the body; hairs on the outer third very long; ears moderately small; antitragus obsolete.

4. D. Ordii Woodhouse. Tail brownish, with a broad white vitta each side; long terminal hairs pale brown, white at the base. El Paso, Texas; Dr. Woodhouse.

Of the fifth species there is a single specimen labelled "James Read, South Carolina;" this locality seems doubtful, as all the other species are from the western part of the continent. It seems to belong to the first division, although, as the outer portion of the tail is wanting, we cannot be certain of that fact. The length, however, of the individual caudal vertebræ, indicates a tail similar to that of D. agilis, with which it agrees in color. The ears are somewhat larger than in that species, and the antitragus is large, broad and obtusely rounded at its summit. For this species the name D. Wagneri is proposed.

Of Perognathus there are now three species known.

1. P. fasciatus Wied, Nova Act. Leopold Car. Acad. 19, 369, tab. 34: Wagner, Schreber's Saügeth. Suppl., 3, 612; Schintz, Syn. Mam., 2, 259. Missouri Territory.

2. P. penicillatus Woodhouse. Proceed. Acad. Nat. Sc. 6, 200. New Mexico.

3 P. parvus Lec. *Cricetodipus parvus* Peale, U. S. Exp. Exp. Mam., p. 53, pl. 13, fig. 2.

A specimen procured by me in the Desert of the Colorado of Southern California, differs only from Peale's original specimen from Oregon in having the whiskers partly black; it is apparently a more adult specimen, though not larger than the one in the Exp. Exp. Collection. An error occurs in Peale's description and measurement, where the tail is stated to be longer than the body; it is in reality a little shorter than the head and body, reaching just in front of the ears, when laid along the back.

Dr. Charles M. Wetherill presented to the notice of the Society specimens of fused Asphalte from Hillsboro', New Brunswick, which variety of Asphalte he had characterized as *Melan-Asphalt*, in a paper read before the American Philosophical Society in July last .Dr. W. remarked that Chemists, who had pronounced this variety of Asphalt infusible, had not properly experimented with it. He bah recently fused it in a German flask; it flowed with a level surface and was poured out, after which it hardened. It is remarkably electric both before and after fusion.

January 18*th*.

VICE-President BRIDGES in the Chair.

A letter was read from the Secretary of the Smithsonian Institution, dated Washington, Dec. 20, 1852, acknowledging the receipt of late numbers of the Proceedings.

Dr. Hallowell read a paper intended for publication in the Proceedings, "On some new Reptiles from California;" which was referred to Dr. Ruschenberger, Dr. Heermann and Dr. Woodhouse.

Dr. Le Conte called the attention of the members to a description, with a plate, by Wesmael, of the Mexican Ant, in the Bulletin de l'Acad. Royale de Bruxelles. Wesmael considers the characteristics sufficiently well marked to form a new sub-genus, Myrmecocystis.

Dr. Bridges, on behalf of the Publication Committee, announced the publication of Part 3, Vol. 2, New Series of the Journal.

Dr. Kane asked that an estimate be made of the expense, &c. of materials necessary for the preservation of objects of Natural History in the proposed Arctic Expedition. Referred to the Committee previously appointed to confer with Dr Kane.

January 25*th*.

Vice-President BRIDGES in the Chair.

The Committee on Dr. Le Conte's paper describing new Coleoptera of the United States, reported in favor of publication in the Proceedings.

Descriptions of twenty new species of Coleoptera inhabiting the United States.

By JOHN L. LE CONTE, M. D.

The following are a few remarkable species of families which are so small as not to be of sufficient importance for a special essay, or else they belong to groups which, having already furnished material for synopses or monographs, are not sufficiently increased to need revision. Some new genera are proposed, the affinities of which, so far as made out, will be detailed below; the names of the families to which the genera belong are appended to each. Species indicated from the Mexican Boundary, were collected by Mr. J. H. Clark, under Col. J. D. Graham, and were kindly communicated to me by my friend Dr. S. F. Baird.

ANISOMERA *Brullé*. (Dytiscidæ.)

Palpi cylindrici, labiales articulo penultimo longiore; prosternum non compresso-carinatum, postice productum; tarsi anteriores filiformes articulo ultimo elongato, postici parce ciliati, articulis 1mo 5toque elongatis, unguiculis binis æqualibus mobilibus.

Having several specimens of a species of this interesting genus from New Mexico, I am able to complete the description of Brullé and Aubé, which were taken from a specimen deprived of its posterior feet. These organs are slender; the tibiæ are slightly ciliated internally with long hairs, and armed at the tip with two slender, subequal spurs; the posterior tarsi are not longer than the tibiæ, slightly compressed and sparsely ciliated; the first joint is as long as the second and third; the 2d, 3d and 4th are nearly equal; the 5th is a little shorter than the 3d and 4th, not narrowed towards the extremity; the claws are equal and moveable. In the male, the first three joints of the anterior and middle tarsi are slightly dilated, and furnished beneath with feathery papillæ, very much as in Platynus. The posterior tibiæ of the female are scarcely ciliate.

This genus appears quite as closely allied to Agabus and Copelatus as they are to each other. The form of the thorax would indicate, however, that it must be received as a distinct genus, but the characters, on close examination, appear to be of little value; the best differences are found in the elongation of the last joint of the anterior and middle tarsi, the smaller size of the spurs of the posterior tibiæ, and the more regular form of the posterior tarsi, which are not attenuated at the apex. The middle lobe of the mentum in the species here described is broad, short, and very obsoletely situated, while the mentum of Anisomera is described as having the middle lobe slightly prominent in the middle; this character must be re-examined with other specimens, as, if it be correctly described, the present species cannot be associated with the type of the genus; the prosternum is less compressed than in Copelatus. Agabus is described as having the prosternum strongly compressed and carinate; this structure is found in A. taniatus *Aubé* and many others, but is hardly to be observed in A. striatus *Aubé*. I would also observe that Agabus angustus *Lec*. (Agassiz' Lake Sup., 213) by having the thorax much rounded before, and nearly parallel behind the middle, show a tendency towards the peculiar form seen in Anisomera.

A. cordata, supra æneo-picea, elongato-ovalis, depressa, subtilissime reticulata, thorace brevi, postice angustato, et lateribus sinuato, elytris thorace vix latioribus, postice non dilatatis; subtus nigra, ore antennis pedibusque rubro-piceis. Long ·45.

Santa Fe, New Mexico. Mr. Fendler. Varies, with black feet; the sides of the thorax are strongly rounded in front, and subsinuate behind; the base is as wide as the apex, the anterior dilatation being produced by the curvature of the sides; the anterior angles are acute, the posterior angles rectangular. The elytra are very little wider than the widest part of the thorax, regularly elongate, elliptical, with the usual series of punctures becoming irregular towards the tip.

AMPHIZOA *Lec.* (Fam. nova?)

Pedes ambulatorii, tarsi pentameri, articulo ultimo valde elongato; antennæ 11-articulatæ, filiformes, glabræ; palpi breves cylindrici; maxillæ lobo interiore arcuato acuto, exteriore biarticulato, palpiformi; prosternum postice productum, obtusum; coxæ anticæ et intermediæ parvæ, globosæ posticæ transversæ ad marginem corporis extensæ; abdomen 6-articulatum, articulis 3 primis connatis.

After repeated comparisons with genera of all the families to which this insect seems allied, it has been found impossible to place it in any of the previously established groups. A full discussion of the comparative value of the characters offered by it, would involve an examination of the fundamental principles of classification of the terrestrial and aquatic predacious beetles; the material for such a discussion is not yet available in this country, and it must therefore be postponed to a future occasion. For the present, a few observations on some heretofore neglected relations existing between those families, will be sufficient to indicate the position of Amphizoa.

A large series of pentamerous, carnivorous Coleoptera, may be characterized as having the antennæ neither clavate nor lamellate, but usually filiform, and the prothorax with distinct epimera and episterna; the anterior coxæ small, not prominent, usually globular; the trochanters always simple; the anterior segments of the abdomen connate. This series may be divided into two great groups.

I. In the first, the anterior coxæ are contained in the prosternum alone; the posterior coxæ do not extend to the margin of the body, so that the first ventral segment of the abdomen reaches the parapleuræ, and articulates with them. (The antennæ are always regular, the basal joints glabrous, the outer ones pubescent; the anterior coxæ always globular.) This group consists of the Cicindelidæ and Carabidæ.

II. In the second, the anterior coxæ are received between the pro-and mesosternum, the posterior portion of the acetabulum being composed of the latter; the posterior coxæ extend to the margin of the body, so that the connection between the parapleuræ and first ventral segment of the abdomen is entirely cut off. This group is composed of the aquatic families Haliplidæ, Dytiscidæ, and Gyrinidæ.

Recurring now to the second group, it will be found that Amphizoa agrees with it in the glabrous antennæ, and in the form of the head, labrum, maxillæ and mentum; the latter is large, deeply emarginate, with the lateral lobes rounded; in the middle of the emargination is a broad, short, blunt tooth. The ligula is large, filling the emargination of the chin, truncate at tip, and prominent along the middle and apex, so as to present a form like the letter T. The maxillæ are of the ordinary form seen in Carabidæ, but the inner lobe is not ciliated. The prosternum is not elevated, it is not lobed in front, but posteriorly is produced in an obtuse spatula-like process, fitting into the mesosternum, which is excavated through its entire length; the anterior coxæ are moderately distant, small and round. The episterna are divided by an oblique suture from the humerus to the middle coxæ. The parapleuræ are slightly triangular, not appendiculate, and entirely separated from the ventral portion of the abdomen by the posterior coxæ, which are transverse, flat externally, slightly elevated and diverging at the insertion of the leg, as in Carabidæ; the diverging lobes are obtusely rounded, but not so much elevated as to allow the freedom of motion observed in Dytiscidæ. The legs are not at all compressed; the femora and tibiæ are slender and finely scabrous, with elevated points, the terminal spurs of the tibiæ are small; the tarsi are three-fourths as long as the tibiæ, filiform, glabrous, scarcely rough or pubescent beneath; the first four joints are equal, the last joint is equal to the three preceding united; the claws are moderate, equal and simple.

It will be found in comparing these characters with those of Dytiscus, that the only important differences are in the form of the feet, and in the smaller size of the posterior coxæ. Now, although the Dytiscidæ and Haliplidæ, which are certainly closely related, agree in having natatorial feet, they differ greatly in the modification of form, those of Haliplus being much nearer the terrestrial or ambulatorial type. The posterior coxæ also differ greatly in the two families, those of Haliplus being dilated into a broad plate, under which the posterior legs can be withdrawn. We must, therefore, conclude that the differences between Amphizoa and the two families just mentioned, are not of greate value than the differences between those two families themselves.

The other relations of this insect, from the form of the tarsi, would appear t be slightly towards Parnus. The roughness of the surface above and below i of a peculiar nature, and resembles very much what is found in certain Buprestidæ; in fact, from the general appearance of the insect, it would at first sight be supposed to have some affinity to the broad Madagascar Buprestidæ forming the genus Polybothris. Of its habits nothing is known.

I would therefore divide the group now under consideration into four families, thus:

A. Mesosternum parvum; (antennæ filiformes, oculi duo coxæ intermediæ globosæ.)

1. Pedes ambulatorii, tenues, coxæ posticæ transversæ, mediocres. AMPHIZOIDÆ.
edes subnatatorii, tenues, coxæ posticæ magnæ laminatæ. HALIPLIDÆ.
3. Pedes postici natatorii, compressi, coxæ posticæ magnæ, simplices. DYTISCIDÆ.

B. Mesosternum maximum; (antennæ breves, perfoliatæ, oculi quatuor.)

4. Pedes posteriores natatorii, valde compressi, coxæ intermediæ triangulares planæ. GYRINIDÆ.

Having now ascertained as far as practicable the position of Amphizoa, we may proceed to the specific description of the only species yet obtained.

A. insolens, atra, opaca, subvirescens, glabra, thorace scabro, canaliculato, antrorsum angustato, lateribus subserratis, ad medium subangulatis, postice subangustato, angulis posticis acutis, elytris ovalibus, substriatis, scabro-punctatis, thorace duplo latioribus. Long. ·52.

Sacramento, California, collected by Mr. J. Childs, and given me by Mr. Rathvon. Color dull black, slightly tinged with greenish, without lustre. Head irregularly rugous and punctulate, with two shallow impressions between the antennæ. Labrum covering the obtuse mandibles, slightly and broadly emarginate in front. Thorax twice as wide as the head, flat, scabrous; sides subserrate, strongly narrowed from the middle to the apex, slightly narrowed and subsinuate posteriorly; base very broadly bisinuate, posterior angles acute; disc channeled, with a shallow impression each side at the base, and a broad transverse one before the middle. Elytra broadly oval, slightly convex, nearly twice as wide as the thorax, scarcely one half longer than wide, scabrous with shallow punctures, striate with nine slightly impressed grooves, which appear coarsely and indistinctly punctured. Scutellum flat, broad, acute, at apex. Under surface of the body covered with shallow confluent punctures and wrinkles. Legs scabrous with fine elevated punctures. No sexual difference observed in five specimens examined.

STENOCOLUS *Lec.* (Atopidæ.)

Tarsi elongati tenues, unguibus simplicibus, paranychio bisetoso; caput clypeo distincto, antice membranaceo; mandibulæ apice integræ; antennæ elongatæ, serratæ, articulo 2ndo minuto; palpi maxillares breviusculi cylindrici.

This genus resembles in its characters Anchytarsus *Guérin*, but differs in having a distinct transverse suture each side between the antennæ; in the middle this suture is not obvious, but the front is slightly elevated, so that the suture appears slightly sinuous; the anterior part of the clypeus is membraneous; the labrum is transverse and rounded; the eyes are round, the prosternum projects posteriorly, and the mesosternum is concave; the tarsi are long and slender, the first four joints are very slightly pubescent beneath, and the first joint is a little elongated; the last joint is as long as the three preceding united. The claws are moderate and simple; the intermediate appendage is small and terminates in two bristles.

The Atopidæ seem by this genus and Anchytarsus to show a slight affinity towards the Parnidæ, through the anomalous genus Eurypalpus *Lec.* (Proc. Acad. Nat. Sci. 6, 41.)

S. scutellaris, elongato-oblongus, piceus, fusco pruinosus, thorace punctato, antrorsum angustato, basi bisinuato, angulis posticis acutis, elytris scabro-punctatis, scutello albo pubescente. Long. ·55—·87.

One pair, Sacramento, California, from Mr. Rathvon. Body elongate, narrowed at each end, sides parallel at the middle, piceous, covered with very short depressed, dirt-colored pubescence. Antennæ black, strongly serrate in the male, slightly serrate in the female. Thorax nearly three times as wide as the head, nearly twice as wide as long, strongly narrowed in front, sides at the middle almost angulated, then slightly concave to the posterior angles, which are acute; base bisinuate; surface finely punctured, broadly concave along the margin behind the middle, and broadly transversely impressed at the base. Scutellum round, covered with dense white hair. Elytra scabrous with shallow punctures, spaces between the punctures finely punctulate; the elevated lines, which may be traced in allied genera, are slightly visible. Body beneath more densely pruinose with short cinereous hair.

The other species of this family known to inhabit the United States are:

1. Anchytarsus bicolor. *Atopa bicolor!* Mels. Proc. Acad. Nat. Sci. 2, 221. *Anchytarsus ater* Guérin Icon. Anim. Artic., No. 15, (Jan. 1849.) Pennsylvania, S. S. Haldeman.

2. Odontonyx ornata Guérin, loc. cit. No. 14. *Atopa ornata!* Mels. Pr. Acad. Nat. Sci. 2, 220. Pennsylvania, not rare.

3. Dascillus melanophthalmus Guérin, loc. cit. No. 13, p. 6. I have not seen this species, but learn from my father that it occurs in Georgia. Atopa fusca *Mels.* (Proc. Acad. 2, 221) is, as Guérin has already observed, a Ptilodactyla, and therefore cannot be placed in this family.

The singular genus Zenoa *Say* (Bost. Journ. Nat. Hist. 1, 153,) differs from the genera above cited, by its immarginate thorax, prominent mandibles, subpectinate antennæ, and elongate densely hairy paronychia; these characters approximate it to Sandalus (female); from the Rhipiceridæ, however, it differs in having the anterior coxæ more deeply imbedded between the pro- and mesosternum, and also in the absence of lobes on the under surface of the tarsi; in the Atopidæ we know already that the latter is a valuable character, and there appears to me no good reason why the two families, Atopidæ and Rhipiceridæ should not be merged together. The synonymy of the only species of Zenoa known to me is:

Z. picea *Lec.* Journ. Acad. Nat. Sci., New Ser. 1, 89. *Melasis picea* Beauvois, Ins. 7, tab. 7, fig. 1. *Sandalus (Zenoa) brunneus* Say, Bost. Journ. Nat. Hist. 1, 152. *Zenoa vulnerata* Lec. loc. cit.

Middle and Western States: the last synonym belongs to a variety with the thorax partly red.

Cerophytum is usually placed in the vicinity of these genera, and has been bandied about between Eucnemides, Rhipiceridæ and Cebrionidæ; it must, however, belong to the latter family. The great development of the trochanters entirely separates the femora from the coxæ; the same structure is to be found in Cebrio bicolor, although the trochanters are not so long; the indistinct labrum and globular anterior coxæ also place it with Cebrio, while the whole form of the head, as well as the general appearance, would separate it from the Eucnemides, which, as I have already observed,* should be considered as a group of Elateridæ. The small mandibles and lobed tarsi are certainly very different from those of Cebrio, but we know that the latter character is merely of generic value in both Elateridæ and Atopidæ. The description of Haldeman is incorrect as regards the posterior feet, in which the *coxæ* are said to be very long, while in reality the *trochanter* is meant. The bibliography of our species is as follows:

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* Proceedings of the Academy of Natural Sciences, 6, 45.

C. pulsator Hald. Proc. Acad. Nat. Sci. 3, 348. *Chorea pulsator* Hald. ibid. 3, 150.

For the typical female I am indebted to the liberality of Mr. Haldeman; and for a fine male, found in Ohio, to Dr. Schaum.

CHAULIOGNATHUS *Hentz.*

1. C. discus, luteus antennis pedibus pectoreque medio nigris, thorace elliptico longiusculo, lateribus reflexis. Long. ·6.

Several specimens, from the Mexican Boundary, Prof. Baird; collected by Mr. Clark, under Col. J. D. Graham. Body elongate, parallel, very finely pubescent, luteous yellow; antennæ black, 3d joint nearly equal to the 4th; head elongate, palpi and mandibles black; occiput sometimes fuscous; thorax nearly twice as wide as the head, longer than wide, apex very much rounded, slighty reflexed, base less rounded, margined, sides strongly reflexed, disc scarcely uneven, shining, sometimes with a black spot on the little protuberance each side of the middle; elytra opaque, coarsely punctured with two faint elevated lines; sometimes each is marked with a black dot at the posterior third. Beneath luteous, middle of the pectus and feet black; trochanters testaceous; anal segment of the male fuscous.

2. C. scutellaris, elongatus, niger thorace luteo maculis 2 nigris confluentibus notato, apice rotundato, lateribus reflexo, elytris luteis macula communi scutellari posticaque utrinque nigris, abdomine luteo. Long. ·48.

Several males from the same locality as the preceding. Body slender, black, finely pubescent; head moderately elongated, third joint of the antennæ one-half as long as the 4th; thorax a little longer than wide, rounded at the apex, reflexed at the sides, margined and slightly sinuate at base, disc uneven, without lustre, yellow, with two large confluent black spots. Elytra without lustre, coarsely punctured, yellow, with a large common triangular spot at the base, and another elongate one on each behind the middle, black. Abdomen yellow.

COLLOPS *Erichson.*

C. balteatus, niger, breviter nigro-pilosellus, brevissime argenteo pubescens, capite antice, thoracis subtiliter punctulati limbo loto, antennarumque basi rufis, elytris punctatissimis rufis basi maculaque postica maxima cyaneis. Long. ·31.

Two specimens from Tampico (Mexico), Lieut. H. Haldeman; and one from the Mexican Boundary, collected by Mr. Clark. This is the largest species I have seen. Head black, front mouth and base of antennæ rufous. Thorax very finely punctured, one half wider than long, rounded, rufous, with a large hexagonal black spot, which is a little emarginate before and behind. Elytra wider than the thorax, very densely punctured, rufous with four blue spots, which are so large that only a narrow sutural lateral and apical margin and a transverse band before the middle remain reddish yellow. Beneath black, with the antepectus, and margins of the abdominal segments testaceous. Feet black; knees obsoletely rufous.

The outer joints of the antennæ of the male are dark colored, though not black as in the female.

CLERUS *Geoffr.*

C. Spinolæ, niger, pilosus, elytris convexiusculis, rugose punctulatis, coccineis macula humerali fasciaque ad trientem secundum nigris, abdomine sanguineo. Long. ·38—·52.

Several specimens from the Mexican Boundary. Body black, hairy. Head finely but not densely punctured, first joint of antennæ red beneath. Thorax wider than the head, punctulate, moderately convex, broadly and deeply impressed anteriorly. Elytra more than one half wider than the head, moderately convex, densely rugosely punctulate, pubescent with fine yellow hairs, with a few black bristles intermixed; color bright scarlet, with a black humeral spot, and a black band at the second third of their length, which almost reaches the side and the suture, leaving only the extreme bead of the margins red. Beneath black, abdomen sanguineous.

The posterior band of the elytra is sometimes narrow and more widely interrupted at the suture; the elytra are sometimes orange-colored, rather than scarlet.

This very beautiful species is dedicated to the Marquis Max. de Spinola, author of the finely illustrated "Essai Monographique sur les Clérites."

TOSTEGOPTERA *Blanchard.*

T. cribrosa, brevis, inflata, purpureo-picea, supra glabra (?), thorace varioloso, antice medio paulo deplanato, elytris subreticulatis, longitudinaliter obsolete sulcatis. Long. ·65.

Two females from the Mexican Boundary, collected as above. The genus was founded by M. Milne-Edwards in the "Catalogue de la Collection Entomologique du Museum d'Histoire Naturelle de Paris," p. 149, upon *Melolontha lanceolata* Say, (Journ. Acad. Nat. Sc. 3, 242), with which this species agrees in form and structure, but differs remarkably by the coarse sculpture of the upper surface, and by the absence of all pubescence or scaly appendages. The latter may have been removed by the alcohol in which the specimens were preserved, but on very careful examination no trace of them could be found. The body beneath is shining, sparsely and finely punctured, with a short hair proceeding from each puncture.

(A male seen in the Smithsonian Institution at Washington, differed in having the body more regularly oval, less convex, and not inflated posteriorly.)

CREMASTOCHILUS *Knoch.*

1. C. Schaumii, ater, opacus, breviter setosus, thorace confertim punctato, lateribus rotundato, angulis anticis foveatis, posticis acutis subelevatis, elytris punctis ellipticis minus profundis, mento modice concavo, postice subacuto. Long. ·6.

San Diego and Sta Isabel, California. Black, almost without lustre. Head finely scabrous; mentum shallow, moderately concave, rounded in front, obliquely narrowed behind, so as to be slightly angulated posteriorly. Thorax one half wider than long, narrowed in front, rounded on the sides; disc tolerably densely, not deeply punctured, with short bristles from the punctures; anterior angles foveate internally, posterior angles acute, scarcely elevated; base bisinuate, faintly impressed each side. Elytra flattened, not uneven, sparsely punctured with large elliptical shallow foveæ, from which proceed short bristles.

This species is larger thon C. canaliculatus *Kirby*, and is very different in the form of the mentum and thorax, and in the less distinct punctuation of the head. There is not a trace of emargination at the posterior part of the mentum; the anterior angles of the thorax appear to be more deeply foveate in the male than in the female. The excellent labors of Dr. Schaum in the present tribe are well known to every entomologist.

2. C. Knochii, ater, subnitidus, glaber, thorace parce varioloso canaliculato, lateribus rotundatis, angulis anticis foveatis, posticis elevatis nitidis, basi utrinque impresso, elytris inæqualibus, punctis ellipticis minus profundis, mento modice concavo, postice acuto. Long. ·45.

Missouri Territory. Black, with but little lustre. Head densely punctured, mentum shallow, moderately concave, rounded in front, obliquely narrowed behind, so as to form an angle posteriorly. Thorax almost one half wider than long, channelled, narrowed in front, rounded on the sides; disc sparsely punctured, punctures large and shallow; anterior angles with a small fovea, posterior acute, shining, moderately elevated, base scarcely sinuate, with a broad moderately deep impression each side. Elytra flattened, with indications of two broad grooves on each side; surface somewhat irregular, impressed with large shallow elliptical punctures. This and the preceding seem related to C. mexicanus *Schaum* (Germ. Zeitschr. 3, 256; Am. Ent. Fr. 2d ser. 2, pl. 11, fig. 8), but the posterior angles are not tuberculate.

Two specimens of this species were found by me on the Arkansas River, near the Rocky Mountains; one of them is now in the collection of Dr. Schaum. Descriptions of this and the next species were furnished by me four years ago to Mr. Westwood, for an anticipated monograph of Cremastochilus, which, however, although quoted in Schaum's Catalogue of Cetoniæ, appears not to have been published; and therefore considering them as interesting additions to our fauna, I take the present opportunity of making them known.

3. C. nitens, nigro-castaneus, nitidus, breviter setosus, thorace parce varioloso, antrorsum valde angustato, basi subito constricto, angulis posticis auriculatis, anticis foveatis, elytris inæqualibus sat dense punctatis, mento valde concavo, rhomboideo. Long. ·43.

Missouri Territory. Brownish black, shining. Head strongly scabrous; mentum deeply concave, subrhomboidal, anteriorly broadly rounded, lateral and posterior angles distinct. Thorax one half wider than long, strongly narrowed in front, rounded on the sides, very strongly constricted near the base, so that the base is not wider than the apex; surface sparsely and deeply punctured, with very short yellow bristles proceeding from the punctures; anterior angles not acute, deeply foveate, posterior angles forming a round shining tubercle, separated by a deep cut from the body of the thorax; base very much depressed, smooth. Elytra deep red towards the middle, flattened, slightly uneven, covered with moderately close rounded shallow punctures, from which proceed short yellow hairs.

These three species seem to belong to Burmeister's genus Psilocnemis, by the form of the lower lip, but as there is not a complete resemblance among them in this respect, I follow Schaum's example in merging the two genera together.

Among our previously described Cremastochilus, may also be observed considerable difference in the form of the lower lip. That organ is only slightly emarginate posteriorly in C. variolosus, while it is deeply cleft in C. Harrisii, canaliculatus and castaneæ. C. junior (Westw.), quoted in Schaum's Catalogue of Lamellicornia melitophila, is unknown to me, nor have I in my collection any specimens from the Atlantic States which cannot be referred to the four species just mentioned.

C. politus Schaum (*Psilocnemis leucostica* Burm.) is considered as North American on the authoritory of a single specimen communicated by Mr. Gory to Burmeister. The fact that the Wsstern species above described agree in the absence of the emargination of the lower lip, induces me to believe that the species in question is really Mexican. The distinction of locality in regard to North America is very frequently not attended to with sufficient care by European Naturalists, who possibly have a prophetic eye towards the extension of the republic; which event, however desirable for the increase of our fauna, cannot alter the preordained laws of distribution of species.

ALLOEOCNEMIS *Lec.* (Nitidulariæ, Peltides.)

Oculi duo laterales prominuli; antennæ 11-articulatæ, articulis tribus ultimis maioribus, distantibus; frons concava, apice emarginata: tibiæ posteriores muticæ; anticæ extus serratæ, spina apicali uncata.

I have merely given the characters to distinguish this curious genus from the genera described by Erichson (Germ. Zeitschr. 5, 445, &c.); the only two allied to it by the form of the eyes are Egolia and Acalantha, from which it is very distinct by having three enlarged antennal joints. Its form is nearly that of Nemosoma, but its greater size renders its appearance very singular. The pectus and tibiæ are very hairy; the two posterior pairs of tibiæ not spinous, with two terminal spurs, of which one is so small as to be indistinct; the anterior tibiæ are slightly compressed, the outer margin serrate, with small distant teeth, of which the lowest is most distinct; the apex is obliquely truncate; the terminal spur is tolerably large and curved. The tarsi are filiform, the first joint very small, inferior, the 2d equal to the rest united. The antennæ are slender and not much longer than the head; the first joint is a little longer than the 4th, the 3d is a little shorter than the 2d, which is about one half as long as the first; the 4th—8th are nearly equal, and cylindrical; the 9th and 10th triangular, a little longer than wide; the 11th oval, about equal to the 10th; these last three are compressed, and about twice as wide as those which precede.

A. Stoutii, nigro-picea, capite magno, scabro, fronte concava, thorace punctulato trapezoideo, postice angustato, antice vage impresso, elytris cylindricis, subtiliter rugosis. Long. ·83.

San Francisco, California, given me by my friend Dr. A. B. Stout, to whom I take pleasure in dedicating it. Body dull black; head large, obtuse, covered with coarse granulations, with a few erect black hairs: front deeply concave: mandibles thick and prominent, apex acute. Thorax narrower than the head, with the eyes not wider than long, truncate at base and apex, narrowed behind, sides almost straight, deflexed sides scabrous, with erect black hairs; disc finely punctulate, broadly transversely impressed before the middle; with a very obsolete longitudinal line extending from base to apex. Elytra as wide as the head and eyes, elongate, cylindrical, finely punctulate and rugous, with small confluent wrinkles, which are less dense and more distinct towards the base. Scutellum very small, impressed. Beneath finely and densely punctulate, pectus covered with long yellow hair.

DEROBRACHUS *Serv.*

D. geminatus, piceus, nitidus, thorace valde transverso, antice non angustato, parce punctulato, lateribus quadrispinoso, spina antica minore, elytris lævigatis, margine angustiore reflexo. Long. 2·9.

This very large species was collected by Dr. Henry, U. S. A., at Albuquerque, New Mexico, and kindly sent to me. It is easily distinguished from all the other species, by having in addition to the three usual large spines, a smaller one formed by the anterior angle being produced outwards. The elytra are entirely smooth, except at the base, where a few indistinct rugæ are visible; the lateral reflexed margin is much narrower than in the other species; the suture presents scarcely a trace of the spine at the apex; the abdomen is smooth, the pectus is covered with short yellow hair. The antennæ (of the female) are scarcely half as long as the body, slender, with the three first joints polished and sparsely punctured; the third joint is feebly sulcate longitudinally. The legs are precisely as in the other species.

CALLICHROMA *Latr.*

C. plicatum, viridi-æneum, sericeum, thorace inæquali transversim plicato, abdomine rufo, antennis pedibusque nigris, femoribus rufis apice nigris. Long. 1·25.

Mexican Boundary, collected by Mr. Clark; another specimen found in Texas by Lieut. Haldeman. In size and form exactly resembles C. splendidum *Lec.*, but differs very much in the sculpture of the thorax and uniform green color of the upper surface.

EBURIA *Serv.*

E. mutica, picea, fusco pubescens, thorace subcylindrico, lateribus paulo rotundatis, ad medium vix spinosis, tuberculis 4 atris nitidis ante medium ornato (exterioribus in latere sitis), elytris sat dense punctatis, callo basali exteriore, posticoque interiore minoribus, apice truncatis. Long. ·67—·85.

This interesting species was first found by Lieut. Haldeman at Tampico, and I have recently obtained a specimen collected at New Braunfels in Texas, by Mr. Lindheimer. The thorax is scarcely longer than wide, and slightly rounded on the sides; the lateral spine is represented by a mere elevated point; the disc is sparsely punctured, but the hair obscures the punctures; before the middle there are two shining black tubercles, and on each side, nearer the anterior angle is another similar tubercle. The elytra are coarsely punctured, slightly truncate, but not armed at tip; they have each four small polished lines associated by pairs, but not united, the outer basal one is very small; the inner one of the posterior pair, which is placed about the middle, is smaller than the outer.

Physocnemum *Hald.*

P. amethystinum, nigrum, thorace transverso, lateribus valde rotundatis, basi brevissime tubulato, disco confluenter punctato, irregulariter calloso, elytris læte violaceis, nitidis, confertim punctatis, femoribus non clavatis. Long. ·75.

This species has a general resemblance in appearance to P. Proteus, but differs from all the species known to me in having the anterior as well as the posterior thighs simple; the thorax is narrowed in front, rounded on the sides, suddenly narrowed towards the base, which is slightly tubulate; the sides are very densely and confluently punctured, the disc less densely so, with three indistinct smooth longitudinal elevations. The elytra are shining violet blue, finely and densely punctured, the punctures becoming larger and less dense towards the base.

One specimen was found at Sacramento, California, by Mr. J. Childs, and given me by Mr. Rathvon.

A Callidium from the same collection is very similar to the female of C. antennatum, but the thorax is more densely punctured; I can otherwise discover no difference.

Cacoplia *Lec.*

Having, since the publication of my essay on Longicornia, obtained, through the kindness of Mr. Haldeman, the original specimen of his *Saperda pullata*, I have convinced myself that it must be referred to this genus, proposed by me in the Journal of the Academy (New Ser. 2, 149.) The following diagnoses will enable the two species at once to be distinguished:

1. C. pullata, fusco-testacea, brevissime densius sordide pubescens, thorace parce punctato, linea dorsali postice glabra, elytris thorace latioribus cylindricis parce minus distincte punctatis. Long. ·68.

Saperda pullata Hald., Trans. Am. Phil. Soc. 10, 55; Lec. Journ. Acad. Sc. 2, 163. Alabama, Haldeman. One specimen.

2. C. pruinosa, testacea, brevissime cinereo pubescens, thorace obscuriore, sat dense punctato, linea dorsali postica glabra, elytris thorace latioribus, cylindricis, distinctius parce punctatis. Long. ·47.

Lec. Journ. Acad. Nat. Sc. 2, 149.

Hebestola nebulosa‡ Haldeman, Tr. Am. Phil. Soc. 10, 54.

New York. One specimen.

Monilema *Say.*

1. M. armatum, elongatum, nigrum, thorace lævi, lateribus acute spinosis, apice et basi punctis marginato, elytris subrugosis, parce grosse punctatis, apice lævibus, dorso convexis, lateribus subito declivibus. Long. 1·25.

Mexican Boundary, collected as before mentioned. This species is similar to M. semipunctatum *Lec.* (Journ. Acad. Nat. Sc. 2, 2, 167,) but the form is more elongate, the thorax is smooth on the disc, and the elytra are more punctured and rugous.

2. M. crassum, breviusculum, nigrum, thorace lateribus subtuberculato, disco opaco parce punctato, margine postico punctato, elytris convexis, subrugosis minus dense variolosis, apice lævibus. Long. ·8.

With the preceding. This species is similar to M. annulatum *Say*, but is stouter in its form. The elytra are much more coarsely punctured, the punctures extend further along the epipleuræ and suture, than along the disc; the elytra are very convex, the sides descend more abruptly than in M. annulatum, but less so than in M. armatum.

There are now five species of this genus known to me; they appear to be quite limited in their distribution, and are by no means common in the locality where they occur. It is very probable that further investigation in the interior of the continent will show that the Dorcadidæ of North America are quite numerous, although thus far they exhibit a lamentable uniformity of color, which will render the determination of species somewhat difficult, without actual comparison of specimens.

NOSODERMA *Solier*.

N. **porcatum**, depressum, sordide, fuscum, thorace latitudine non longiore, postice angustato, valde inæquali, elytris sutura costisque 3 elevatis, intermedia utrinque abbreviata, interstitiis irregulariter biseriatim punctatis; apice tuberculatis. Long. ·57.

Sacramento, Mr. Rathvon. Bears a strong resemblance to N. obcordatum, but is darker colored, the inequalities of the thorax are smaller and more numerous, and the punctures and elevations of the elytra much more regular; the outer and inner costæ end about one sixth of the length of the elytra from the tip, in moderate dilatations; the intermediate costa commences about one fifth from the base, and ends about one fourth from the tip; near the tip on each elytron is a large rough tubercle. The under surface of the body appears black, and is more distinctly punctured than in N. obcordatum.

There are now three species of this genus known to me as inhabiting the United States, viz: N. **diabolicum** Lec. (Ann. Lyc. 5, 130); *N.* **obcordatum** Lec. (*N. inæqualis*? Dej. Cat.; *Boletophagus obcordatus* Kirby, Faun. Bor. Am. 236); and N. **porcatum** Lec., just described.

MYCTERUS *Oliv.*

M. **concolor**, fusco-niger, subtiliter cinereo-pubescens, capite thoraceque confertissime subtilius punctatis, elytris alutaceis minus dense subtiliter punctatis, subtus argenteo-pubescens, tibiis tarsisque vix rufescentibus. Long. ·3.

Sta Fe, New Mexico, Mr. Fendler. The antennæ are entirely black, and a little longer than the head and thorax. The following diagnosis will distinguish the previously described North American species:

M. **scaber**, fusco-niger, luteo-pubescens, capite thoraceque confertissime punctulatus, elytris grosse sat dense punctatis, antennis pedibusque rufo testaceis. Long. ·15—·23.

Haldeman, Pr. Acad. Nat. Sc. 1, 303.

Southern States, abundant; Pennsylvania, rare. The pubescence of the under surface is somewhat silvery; the antennæ are a little darker externally than at base.

The only other member of this group of insects yet known from our country is. **Sphæriestes virescens** Lec. (Agassiz' Lake Superior, 232.)

The Committee on Dr. Woodhouse's description of a new species of Dipodomys, reported in favor of publication in the Proceedings:

Description of a new species of Pouched Rat, of the Genus Dipodomys, Gray.

By S. W. WOODHOUSE.

DIPODOMYS ORDII.

Charact. Essent.—Light reddish brown above, beneath white; tail short, and penicillate at the end.

Description. A little smaller than the D. Phillipii, Gray; head and tail shorter, nose long and pointed, extending some distance beyond the incisors; ears somewhat round, the anterior portion almost naked, posteriorly covered with short fine hair.

Color. Dark reddish brown above; sides light reddish brown; fur ash color at base; sides of the nose, half of the cheek, spot behind the ear, band across the thigh and beneath pure white; a black spot at the base of the long whiskers; a superciliary ridge of white on either side: the penecillated portion of the tail is formed of long white hairs, with bright brown tips.

Dimensions.

	Inches.
Total length from tip of nose to root of tail, - -	5
“ “ of vertebra of tail, - - - - -	4 3-10ths.
“ “ of tail, including hair at tip, - - -	5 5-10ths.
“ “ of os calcis, including middle toe and tail,	1 5-10ths.
“ “ of ear, - - - - - - - -	4½-10ths.

Habitat. Western Texas.

Obs. This animal I procured at El Paso on the Rio Grande, on my way to Santa Fe, whilst attached to the party under the command of Captain L. Sitgreaves, U. S. Army. I have named it in honor of Mr. Ord, President of this Society.

The Committee on Dr. Hallowell's descriptions of new Reptiles from California, reported in favor of publication in the Proceedings:

On some New Reptiles from California.

BY EDWARD HALLOWELL, M. D.

PITYOPHIS, *Holbrook.*

PITYOPHIS HEERMANNI.

Specific characters.—Head small, the two middle of the four posterior frontals, much broader in front than behind; yellow above, a narrow black band between the orbits; occipital plates marked with black; a narrow oblique band of black passing from the posterior margin of the orbit, to the angle of the jaw; body yellowish, with about fifty distinct subquadrate black spots, emarginate in front and posteriorily; emarginations less distinct toward tail; interspaces between these large spots, presenting smaller ones, forming a continuous row on each side of the back; about sixteen transverse black spots upon the tail; intermediate spaces yellowish; chin and throat straw color, the lateral extremities of many of the scuta with black spots; thirty rows of scales, those upon the back small, and distinctly carinated; the four or five inferior rows on each side much larger than the others, and smooth; tail short.

Dimensions.—Length of head, 8 lines; greatest breadth, 5 lines; length of body 1 foot, of tail 2 inches 3 lines; total length, 1 foot 2 inches 11 lines; circumference 14 lines.

Remarks.—Abundant in California; grows to a much larger size. The specimen in the Museum of the Academy came from the mines, in the vicinity of the Cosumnes river; one specimen was found under a log, and Dr. Heermann found several basking in the sun, during the middle of the day, on the banks of streams, in sandy and gravelly places.

CORONELLA, *Laurenti.*

CORONELLA BALTEATA.

Specific characters.—Head small and stout, outline oval, depressed above, covered with nine plates; eyes projecting, anterior frontals smaller than posterior, nostrils between two plates; a very small frenal; one large antocular, two posterior oculars, seven superior labials on each side; neck contracted, body slender, cylindrical, somewhat thicker near the middle; tail rather short and tapering gradually to a point; twenty-three rows of smooth hexagonal scales; a series of about thirty narrow yellowish-white fasciæ, alternating with as many dark colored blotches, which are continuous with similarly colored markings upon the abdomen; the markings of the tail resemble those upon the body, but have the form of bands, the black spots being somewhat more regularly disposed. Abdom. scut. 234; subcaud. 51.

Dimensions.—Length of head, 9 lines; greatest breadth, 5½; length of body 1 foot 7 inches 3 lines; length of tail, 2 inches 9 lines; total length 1 foot 10 inches 9 lines; greatest circumference, 1 inch 6 lines.

Dimensions of a larger specimen.—Length of head, 8 lines; greatest breadth, 6½; length of body, 2 feet 4 inches; of tail, 4 inches 4½ lines; total length, feet 9 inches 4½ lines; circumference, 2 inches 3 lines. Abdom. scut. 225; subcaud. 57.

Remarks.—Found in the valleys in the open prairies; grows to a much larger size than either of the specimens, 4 feet in length; very abundant, often killed by travellers, and found lying on the road side; disposition timid, always endeavoring to escape its pursuers.

TROPIDONOTUS TRI-VITTATUS.

Specific characters.—Head rather small, outline above triangular; depressed posteriorly, cheeks tumid, eyes slightly projecting, nostrils between two plates; a quadrilateral frenal plate; one large antorbitar, two posterior orbitars; eight superior labials on each side, the sixth the largest; neck slightly contracted, abdomen flattened, body of moderate size, covered above with nineteen rows of carinated scales; tail of moderate length, tapering to a point; body jet black above, with three narrow vittæ extending from the head to the extremity of the tail; the lateral ones becomes indistinct, the dorsal vitta is orange colored, and occupies one row, and a half of each of the adjoining rows of scales; abdomen and under part of tail olive colored, immaculate; upper surface of head black. Abdom. scuta 146; subcaud. 72.

Dimensions.—Length of head 9 lines; greatest breadth 6 lines; length of body about 1 foot 7 inches; of tail 5 inches 7 lines, (body broken.)

Remarks.—Resembles Tropidonotus concinnus, but wants the orange colored spots, and the lateral vittæ. Very abundant about ponds and on the banks of the Cosumnes and other rivers in California. On being approached quickly dives to the bottom of the stream, or makes its appearance on the opposite side, keeping its head above water. One of the most common snakes in California.

LEPTOPHIS, *Bell.*

LEPTOPHIS LATERALIS.

Specific characters.—Head small, rather long and slender, covered above with nine plates; the posterior frontals are larger than the anterior, passing down upon the sides of the head; vertical very long and narrow, broader in front; nostrils between two nasal plates; a small quadrilateral frenal; a large antocular, its upper portion forming part of the lateral surface of the head; below it a minute supplementary plate intercalated between the third and fourth labials; two posterior oculars; eye large and projecting, space between it and the nostril grooved; eight superior labials, the fourth and fifth forming the inferior margin of the orbit; body long and slender; tail rather long; color brown above, with two narrow yellow vittæ, one on each side, extending from the head to the root of the tail; abdomen and under surface of tail straw color, immaculate; a considerable number of very minute black points upon the chin and throat. Abdom. scuta. 196; sub-caud. 122.

Dimensions.—Length of head 8 lines; greatest breadth 3 lines; length of body 1 foot 5 lines; of tail 5 inches 1 line; total length 1 foot 6 inches 2 lines; circumference 9 lines. 17 rows of smooth scales.

Remarks.—Abundant in the neighborhood of ponds, lakes and banks of rivers; very timid, escaping to the water for protection the moment it is approached. Grows somewhat larger.

The following are from the same locality, viz.:

GERRHONOTUS MULTICARINATUS, Blainville. Nouv. Annal. du Mus., tome iv., 1835, pl. 25, fig. 2.

TROPIDONOTUS ORDINATUS, Linn. Length of head and body 1 foot 8 inches; tail 7 in. Abdom. scuta, 170; sub-caud. 85. 19—21 rows of carinated scales.

COLUBER PUNCTATUS,* Linn. The abdomen and under parts of the tail are immaculate, the back and upper part of the tail are light brown; resembling the Coluber atratus, Hall., found in South America, but the latter has carinated scales. Length of head and body 8½ inches; of tail 3 inches. Abdominal scuta 156; sub-caudal 60. 15 rows of smooth scales.

CROTALUS LECONTEI, Hall. Proc. Acad. Nat. Sci., vol. vi. p. 180.

RANA ———, Young. Green, with blackish spots.

SALAMANDRA LUGUBRIS, Hall. Proceedings Acad. Nat. Sci., vol. iv. p. 126. Found in the spring season under logs.

Five specimens of Triton torosus, Eschscholtz,† (Triton granulosa, Skillton,—Sill. Journ. v. vii.) These amphibians are very abundant on the edges of rivers toward the spring; those found by Dr. Heermann were in a mountainous country. The river Calaveres having overflowed its banks, had left small basins of water in the rocks, in one of which about thirty were seen together. Their habits appeared to be indolent; when disturbed, they swam away in a sluggish manner, moving the tail chiefly, the anterior extremities lying closely in contact with the body. A hundred might be seen in the course of a day, after a slight rain, the ground being moist, disappearing slowly when approached. Belly of a deep bright vermillion saffron, as well as the under part of tail and extremities; above very dark brown, appearing almost black during life.

The reptiles above described were presented to the Academy by Adolphus L. Heermann, M. D., who has recently returned to Philadelphia, after a journey of three years' duration, spent, for the most part, in Natural History pursuits, in California and in various parts of S. America. Through his seal and liberality, the Museum of our Institution has been greatly enriched in the departments of Ornithology, Mammalogy, Mineralogy and Herpetology, thus presenting a useful and honorable example of leisure and wealth devoted to the noblest of human pursuits, the study of the phenomena and laws of the material universe.

The Committee appointed under a Resolution of the Academy adopted Dec. 30, 1851, to collect subscriptions for the purpose of enlarging and improving the Hall,

Reported, That the condition of the Resolution had been complied with, and that six thousand five hundred dollars, the amount required to carry out the plan of enlargement then approved of by the Academy, had been secured.

Further improvements had, however, since the above date, been found necessary by the Committee, and the plan had been extended, the additional estimated cost of which would be about $2000. Part of this additional sum had already been subscribed.

The Report was adopted, and the Committee continued.

The following members were appointed a Building Committee, viz.: Dr. T. B. Wilson, Dr. Robert Bridges and Mr. W. S. Vaux.

The Report of the Publication Committee for 1852 was read and adopted.

Dr. Leidy offered the following Preamble and Resolutions, which were adopted:

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* Holbrook, Herpetol., vol. iii. p. 81.

† Zoologische Atlas, Berlin, 1829.

Academy being informed that the Commissioners of the General Land n Washington, in their estimates for the land surveys of the coming season, serted an item for the geological survey of Oregon and the Mauvaises of Nebraska, in which previous surveys have shown there exists the markable and interesting fresh water tertiary geological formation yet red in this country, therefore it is

ved, That the Academy of Natural Sciences of Philadelphia earnestly nends the prosecution of these surveys, believing as it does that the proposed to be surveyed embraces a portion of the most interesting cal region in this country, and that the result must be of the highest nce to science, and is destined to throw a new light upon the natural of this continent previous to the period when the mammoth and mas- ived.

ved, That the Academy would respectfully urge and request Congress permit the opportunity to pass to make the necessary appropriation to lish the desirable objects above stated, and have the surveys carried out ng to the recommendation of the Commissioners of the General Land

ved, That this preamble and series of resolutions be signed by the officers Academy, and sent by the Corresponding Secretary to the Commissioners Land Office at Washington.

motion of Dr. Elwyn, copies of the foregoing were directed to be the Senators from Pennsylvania, and the Representatives from ty and county of Philadelphia.

Society then proceeded to an election for Standing Committees 53, with the subjoined result:

nology, John S. Phillips, S. S. Haldeman, Robert Pearsall: *rative Anatomy and General Zoology*, Joseph Leidy, Edward vell, John Neill; *Mammalogy*, John L. Le Conte, James C. , S. W. Woodhouse; *Ornithology*, John Cassin, Edward Harris, Heermann; *Herpetology and Ichthyology*, Edward Hallowell, Cassin, Gavin Watson; *Conchology* Isaac Lea, Thomas B. Wil- V. S. W. Ruschenberger; *Entomology and Crustacea*, S. S. Hal- , R. Bridges, Wm. S. Zantzinger; *Botany*, R. Bridges, Wm. ntzinger, Elias Durand; *Palæontology*, T. A. Conrad, Joseph , T. B. Wilson; *Geology*, J. Price Wetherill, Aubrey H. Smith, s E. Smith; *Mineralogy*, Wm. S. Vaux, Samuel Ashmead, F. nth; *Physics*, James C. Fisher, B. H. Coates, B. Howard Rand; ry, Thomas B. Wilson, R. Bridges, R. E. Peterson; *Proceedings*, S. Zantzinger, Joseph Leidy, W. S. W. Ruschenberger.

ELECTION OF MEMBERS AND CORRESPONDENT.

f. Robley Dunglison, Dr. Wm. V. Keating, and Dr. Addinell Hew- f Philadelphia, were elected *Members*; and Lieut. M. F. Maury, Navy, Superintendent of the National Observatory at Washington, ected a *Correspondent*.

large shallow elliptical punctures. This and the preceding seem related to C. mexicanus *Schaum* (Germ. Zeitschr. 3, 256; Am. Ent. Fr. 2d ser. 2, pl. 11, fig. 8), but the posterior angles are not tuberculate.

Two specimens of this species were found by me on the Arkansas River, near the Rocky Mountains; one of them is now in the collection of Dr. Schaum. Descriptions of this and the next species were furnished by me four years ago to Mr. Westwood, for an anticipated monograph of Cremastochilus, which, however, although quoted in Schaum's Catalogue of Cetoniæ, appears not to have been published; and therefore considering them as interesting additions to our fauna, I take the present opportunity of making them known.

3. C. nitens, nigro-castaneus, nitidus, breviter setosus, thorace parce varioloso, antrorsum valde angustato, basi subito constricto, angulis posticis auriculatis, anticis foveatis, elytris inæqualibus sat dense punctatis, mento valde concavo, rhomboideo. Long. ·43.

Missouri Territory. Brownish black, shining. Head strongly scabrous; mentum deeply concave, subrhomboidal, anteriorly broadly rounded, lateral and posterior angles distinct. Thorax one half wider than long, strongly narrowed in front, rounded on the sides, very strongly constricted near the base, so that the base is not wider than the apex; surface sparsely and deeply punctured, with very short yellow bristles proceeding from the punctures; anterior angles not acute, deeply foveate, posterior angles forming a round shining tubercle, separated by a deep cut from the body of the thorax; base very much depressed, smooth. Elytra deep red towards the middle, flattened, slightly uneven, covered with moderately close rounded shallow punctures, from which proceed short yellow hairs.

These three species seem to belong to Burmeister's genus Psilocnemis, by the form of the lower lip, but as there is not a complete resemblance among them in this respect, I follow Schaum's example in merging the two genera together.

Among our previously described Cremastochilus, may also be observed considerable difference in the form of the lower lip. That organ is only slightly emarginate posteriorly in C. variolosus, while it is deeply cleft in C. Harrisii, canaliculatus and castaneæ. C. junior (Westw.), quoted in Schaum's Catalogue of Lamellicornia melitophila, is unknown to me, nor have I in my collection any specimens from the Atlantic States which cannot be referred to the four species just mentioned.

C. politus Schaum (*Psilocnemis leucostica* Burm.) is considered as North American on the authoritory of a single specimen communicated by Mr. Gory to Burmeister. The fact that the Western species above described agree in the absence of the emargination of the lower lip, induces me to believe that the species in question is really Mexican. The distinction of locality in regard to North America is very frequently not attended to with sufficient care by European Naturalists, who possibly have a prophetic eye towards the extension of the republic; which event, however desirable for the increase of our fauna, cannot alter the preordained laws of distribution of species.

ALLOEOCNEMIS *Lec.* (Nitidulariæ, Peltides.)

Oculi duo laterales prominuli; antennæ 11-articulatæ, articulis tribus ultimis maioribus, distantibus; frons concava, apice emarginata: tibiæ posteriores muticæ; anticæ extus serratæ, spina apicali uncata.

I have merely given the characters to distinguish this curious genus from the genera described by Erichson (Germ. Zeitschr. 5, 445, &c.); the only two allied to it by the form of the eyes are Egolia and Acalantha, from which it is very distinct by having three enlarged antennal joints. Its form is nearly that of Nemosoma, but its greater size renders its appearance very singular. The pectus and tibiæ are very hairy; the two posterior pairs of tibiæ not spinous, with two terminal spurs, of which one is so small as to be indistinct; the anterior tibiæ are slightly compressed, the outer margin serrate, with small distant teeth, of which the lowest is most distinct; the apex is obliquely truncate; the terminal spur is tolerably large and curved. The tarsi are filiform, the first joint very small, inferior, the 2d equal to the rest united. The antennæ are slender and not much longer than the head; the first joint is a little longer than the 4th, the 3d is a little shorter than the 2d, which is about one half as long as the first; the 4th—8th are nearly equal, and cylindrical; the 9th and 10th triangular, a little longer than wide; the 11th oval, about equal to the 10th; these last three are compressed, and about twice as wide as those which precede.

A. Stoutii, nigro-picea, capite magno, scabro, fronte concava, thorace punctulato trapezoideo, postice angustato, antice vage impresso, elytris cylindricis, subtiliter rugosis. Long. ·83.

San Francisco, California, given me by my friend Dr. A. B. Stout, to whom I take pleasure in dedicating it. Body dull black; head large, obtuse, covered with coarse granulations, with a few erect black hairs: front deeply concave: mandibles thick and prominent, apex acute. Thorax narrower than the head, with the eyes not wider than long, truncate at base and apex, narrowed behind, sides almost straight, deflexed sides scabrous, with erect black hairs; disc finely punctulate, broadly transversely impressed before the middle; with a very obsolete longitudinal line extending from base to apex. Elytra as wide as the head and eyes, elongate, cylindrical, finely punctulate and rugous, with small confluent wrinkles, which are less dense and more distinct towards the base. Scutellum very small, impressed. Beneath finely and densely punctulate, pectus covered with long yellow hair.

DEROBRACHUS *Serv.*

D. geminatus, piceus, nitidus, thorace valde transverso, antice non angustato, parce punctulato, lateribus quadrispinoso, spina antica minore, elytris lævigatis, margine angustiore reflexo. Long. 2·9.

This very large species was collected by Dr. Henry, U. S. A., at Albuquerque, New Mexico, and kindly sent to me. It is easily distinguished from all the other species, by having in addition to the three usual large spines, a smaller one formed by the anterior angle being produced outwards. The elytra are entirely smooth, except at the base, where a few indistinct rugæ are visible; the lateral reflexed margin is much narrower than in the other species; the suture presents scarcely a trace of the spine at the apex; the abdomen is smooth, the pectus is covered with short yellow hair. The antennæ (of the female) are scarcely half as long as the body, slender, with the three first joints polished and sparsely punctured; the third joint is feebly sulcate longitudinally. The legs are precisely as in the other species.

CALLICHROMA *Latr.*

C. plicatum, viridi-æneum, sericeum, thorace inæquali transversim plicato, abdomine rufo, antennis pedibusque nigris, femoribus rufis apice nigris. Long. 1·25.

Mexican Boundary, collected by Mr. Clark; another specimen found in Texas by Lieut. Haldeman. In size and form exactly resembles C. splendidum *Lec.*, but differs very much in the sculpture of the thorax and uniform green color of the upper surface.

EBURIA *Serv.*

E. mutica, picea, fusco pubescens, thorace subcylindrico, lateribus paulo rotundatis, ad medium vix spinosis, tuberculis 4 atris nitidis ante medium ornato (exterioribus in latere sitis), elytris sat dense punctatis, callo basali exteriore, posticoque interiore minoribus, apice truncatis. Long. ·67—·85.

This interesting species was first found by Lieut. Haldeman at Tampico, and I have recently obtained a specimen collected at New Braunfels in Texas, by Mr. Lindheimer. The thorax is scarcely longer than wide, and slightly rounded on the sides; the lateral spine is represented by a mere elevated point; the disc is sparsely punctured, but the hair obscures the punctures; before the middle there are two shining black tubercles, and on each side, nearer the ante-

Rev. M. J. Berkeley, F. L. S., and the Rev. M. A. Curtis, "On the Exotic Fungi from the Schweinitzian Herbarium in the Acad. Nat. Sci. of Philadelphia," was presented and referred to Dr. Zantzinger, Mr. E. Durand and Dr. Bridges.

Mr. Cassin exhibited the specimen of Scalops, described by him, under the name of *Scalops metallescens*, in the paper presented this evening. This specimen was collected in Oregon by the Naturalists attached to the Exploring Expedition under the command of Capt. Wilkes, U. S. N., and is one of the most remarkable species of the family to which it belongs.

February 22d.

Vice President BRIDGES in the Chair.

The Committee to which was referred the following paper by Dr. Woodhouse, reported in favor of publication in the Proceedings:

Description of a new species of Mouse, of the genus Hesperomys, Waterhouse.

BY S. W. WOODHOUSE, M. D.

HESPEROMYS TEXANA.

Char. Essent.—Smaller than the H. leucopus, head shorter and more blunt, ears smaller and more round, brown above, and white, inclining to yellowish, beneath.

Description.—Head large, blunt. Eyes prominent, and dark brown. Ears large, erect, roundish, oval, blunt, sparsely covered outwardly with short appressed brown hairs, inwardly with grey. Thumb of fore feet a tubercle, furnished with a long blunt nail, two middle toes the longest, subequal. Hind feet furred, with the exception of the sole. Whiskers long.

Color.—Hair dark cinereous, above tipped with pale brown, and dusky, so as to have rather a mottled appearance; beneath white inclining to yellowish; the two colors, that is to say above and beneath, tolerably distinctly separated from each other in a straight line. Tail above brown, beneath white; nose mixed brown and grey, or pale brown. Whiskers black and grey; legs white on their inner surface only, feet white, the hairs projecting over the nails.

Habitat.—Western Texas.

Dimensions.

Total length from tip of nose to root of tail, . .	2 1-10	inches.
" " of tail, ...	2 1-10	"
" " of head, ...	1 1-10	"
Height of ear, ...	4-10	"
Breadth of ear, ...	3-10	"
Fore legs, ...	1	"
Hind legs, ...	1 6-10	"

Observations.—I procured this little animal on the Rio Grande, near El Paso, whilst attached to the party under the command of Captain L. Sitgreaves, U. S. Topographical Engineers, on our way to explore the Zuni and Colorado rivers. Of its habits I know nothing. My attention was called to this animal by Major Le Conte, who has been for some time engaged in the study of the mice of our country.

The Committee on Mr. Conrad's "Synopsis of the North American Naiades," reported in favor of publication in the Proceedings:

A Synopsis of the Family of Naïades of North America, with Notes, and a Table of some of the genera and sub-genera of the Family, according to their geographical distribution, and descriptions of genera and sub-genera.

By T. A. Conrad.

The present attempt to give a synonymy of the North American Naiades, has originated from the absence of dates and references in Mr. Lea's memoirs. To render strict justice to every author according to date of publication, is not only the duty of the naturalist, but a necessity of science. The difficulty in the attempt is to ascertain with precision the date of publication of each species, and when this cannot otherwise be obtained, perhaps it would be right to refer to the date on the title-page of the volume wherein the species may be described. Mr. Lea never refers to the date of publication, but says, "my memoir bears date," &c., which means, the day it was read before a meeting of a Society, though not published in some instances until two years afterwards. In adopting the names given by Rafinesque, the rule will be observed to quote no species, without a mark of doubt, which is not clearly borne out by the description, assisted by reference to Rafinesque's shells marked by his own hand, and now placed in the noble collection of Charles A. Poulson, Esq.

It is true Rafinesque's descriptions are brief and many of them obscure, and his figures rude. Others again are better characterized than some of Lamarck's. Mr. Lea complains that Say has not left him one species in his very short and incomplete "Synonymy of Western Unios;" but on the other hand, Mr. Lea credits Rafinesque with only two species of the sixty or seventy he has named and described.

Every man must work according to his means and his abilities. Rafinesque, in his day, was destitute of the advantages many naturalists now enjoy, and could not publish expensive plates; and, unfortunately, he had the examples of Linné and Lamarck for short and indefinite descriptions. If Rafinesque's names should be rejected, there seems no reason why Lamarck's should not share the same fate.

Of late years, Comparative Anatomy has shown that genera can readily be founded on differences in organization of the animal inhabitants of shells varying little in external character, whilst among the Naiades there are divisions so well marked by the external character as well as the hinge, that generic differences can be safely predicted to exist among the animals which inhabit them. These various genera are moreover not indiscriminately placed in every quarter of the globe, but some are peculiar to one country and some to another, as Paxyodon and Prisodon to tropical South America; Plesiodon to tropical Africa, &c., and yet an author, even in the present day, is content to arrange the Naiades in a singularly artificial system, embracing one genus and seven subgenera. Mr. Gray's arrangement is far more natural and useful, but he does not subdivide to the extent that Mr. Swainson did, who was the first to give a philosophical view of the subject, and to have an idea of geographical distribution of genera. Mr. Swainson, speaking of the tuberculated Unios of North America, observes, "Where we find a character, however trivial it may appear, pervading a whole group, we may be perfectly assured that it is a natural character, although it may not be the only one." And if this is true of the exterior, a similar uniformity of character in the hinge is still more important; and how strongly marked it is in Paxyodon, Plesiodon and others!

It is supposed that this family existed at as early a period as the Carboniferous, but it is doubtful if the shells usually referred to Unio were members of this group. Certainly none of the existing genera are represented in the bivalves of that era, nor is there any even in the Lower Tertiary; but in the Crag or Middle Tertiary, the two genera, Unio and Anodonta make their first appearance.

It is worthy of remark that a genus so nearly related to Unio as Trigonia, abounded in numerous species in the Oolitic and Cretaceous eras, and then ceasing to exist during the long Tertiary periods, re-appeared in a solitary species of the present day. Is not this long interval between the fossil and recent species, presumptive evidence that the animal of the living shell is generically different from that of the extinct species? The hinge of a bivalve shell will not always serve to determine a genus, else PLATYODON would be a MYA, and MYCETOPUS an ANODONTA; but when a material difference exists in the hinge, some important variation may be expected to exist in the animal organization. By means of Comparative Anatomy, Agassiz has discovered differences in the animals of the North American UNIOS, which he considers sufficient to warrant the construction of several genera, and when these are fully determined and compared with those of Asia, Africa, &c., it will very likely be found that the various genera are restricted to narrower geographical limits than the mere external characters of the shells would lead us to suppose.

I have at present not ventured to do more than indicate *subgenera*, except among a few distinct groups. In COMPLANARIA, *Swains.*, the hinge is so peculiar and different from the other genera, that it is fully as well entitled to a generic distinction as ALASMODONTA or BARBALA. There is another small group which is somewhat isolated, the plicated shells, having bold and distinctive characters. This has been separated from UNIO under the name of PLECTOMERUS. The only aberrant form in the genus is *U. crassidens*, Lam., which, however, has no affinity with any other group. *U. infucatus*, though somewhat plicated, has a very different character, and belongs to a distinct group. The *U. rotundatus*, Lam., is an isolated shell, with the cardinal teeth more like those of NAIA, *Swainson*, an Asian subgenus, than the other North American UNIOS.

REFERENCES.

LEA.—Transactions of the American Philosophical Society, Second Series.
Synopsis of the Family of Naiades, 1852.
CON.—Monography of the Family Unionidæ.
Proceedings and Journal of the Academy of Natural Sciences, Second Series.
New Fresh Water Shells, May, 1834.
CHENU.—Illustrations Conchologiques, &c.
CHEMN.—Chemnitz (Martini) Neues Syst. Conchyl.
BARNES.—American Journal of Sciences and Arts, vol. vi. 18.
HILDRETH.—Ib. ib. ib. xiv. 18.
DESH.—Deshayes, New Ed. of Lamarck's Anim. sans Vertebres.
FERUSSAC, in Guerin's Mag. de Zoologie, 1835.
LAM.—Lamarck, Hist. Nat. des Animaux sans Vertebres.
RAF.—Rafinesque, Les Annales general des Sciences Physiques, 1820.
SAY.—Nicholson's Enclyclopedia, American edition, article Conchology, vol. 4, 1819.
American Conchology, with a Synonymy of Western Unios.
Transylvania Journal of Medicine.
New Harmony Disseminator.
SWAINS.—Swainson, Exotic Conchology; Zoological Illustrations; Malacology.

NOTE. The Roman numerals refer to the volume, and the figures following indicate the page, plate and figure. An asterisk (*) indicates the doubtful species.

UNIO.

Unio abacus, *Hald.*, Jour. A. N. S. viii. 202.
Lea, Synopsis, 24.
Aberti, *Con.*, Proceed. A. N. S., March, 1850, v. 10.
U. Lamarckianus, *Lea*, 1852, x. 22, 17, 20.
acutissimus, *Lea*, Aug. 1834, iv. 89, 10, 18.
Con. Monog. 86, 47, 2.
Chenu, Conchyl. Unio, pl. 8, fig. 3.
affinis, *Lea*, 1852, x. 271, 19, 26. Synopsis, 27.
amœnus, *Lea*, 1841, viii. 200, 10, 12. Synopsis, 29.
Chenu, Conchyl. Unio, pl. 33, fig. 5.
amygdalum, *Lea*, 1846, ix. 275, 39, 1. Synopsis, 39.
altilis, *Con.*, New F. W. Shells, 43, 2, 1.
Lea, Synopsis, 27.

Unio angustatus, *Lea*, 1832, v. 114, 17, 43. Synopsis, 23.
Con. Monog. 98, 54, 2.
Chenu, pl. 14, fig. 1.

apiculatus, *Say*, New Harm. Dissem. 1829, Amer. Conch. pl. 22.
Con. Monog. 78, 44, 1.
Lea, Synopsis, 22.
U. asper, *Jay*, not *Lea*, Jay's Catalogue, 55.

approximus, *Lea*, 1845, x. 74, 5, 13. Synopsis, 28.

*arctior, *Lea*, 1838, vi. 10, 4, 10. Synopsis, 38.
Chenu, Conchyl. Unio, 21, 2.

arctatus, *Con.*, Sill. Journ., xxv. 340, 1, 9; New F. W. Shells, 36, 5, 4.
Lea, Synopsis, 38.

arcus, *Con.*, Sillim. Journ. 1834, xxv. 340, 1, 8.
Lea, Synopsis, 38.

argenteus, *Lea*, 1841, viii. 242, 25, 57. Synopsis, 26.
Chenu, Conchyl. Unio, pl. 33, fig. 2.

asper, *Lea*, (e) 1832, iv. 85, 9, 15. Synopsis, 22.
Chenu, Conchyl. Unio, pl. 15, fig. 4.
U. apiculatus, var. *Jay*, Catalogue, No. 1496, 55.

Barrattii, *Lea*, 1852, x. 256, 13. Synopsis, 37.

Barnesianus, *Lea*, 1838, vi. 31, 10, 26. Synopsis, 24.
Chenu, Conchyl. Unio, pl. 19, fig. 2.

*biangulatus, *Lea*, 1841, viii. 197, 9, 8. Synopsis, 38.
Chenu, Conchyl. Unio, pl. 30, fig. 7.

Bigbyensis, *Lea*, 1841, viii. 237, 22, 51. Synopsis, 24.
Chenu, Conchyl. Unio, pl. 26, fig. 5.

Binneyi, *Lea*, 1845, x. 77, 6, 18. Synopsis, 29.

Blandingianus, *Lea*, Aug. 1834, v. 101, 15, 44. Synopsis, 33.
Con. Monog. 46, 23, 3.
Kust., Chemn. Unio, 36, 6, 2.

Bournianus, *Lea*, 1841. Synopsis 25, viii. 213, 15, 28.
Chenu, Conchyl. Unio, pl. 28, fig. 2.

Brumbyanus, *Lea*, 1841, viii. 245, 26, 62. Synopsis, 31.

Boydianus, *Lea*, 1841, viii. 216, 16, 32. Synopsis, 38.
Chenu, Conchyl. Unio, pl. 32, fig. 2.

Buckleyi, *Lea*, 1846, ix. 276, 39, 2. Synopsis, 30.

Buddianus, *Lea*, 1846, ix. 277, 40, 4. Synopsis, 32.

buxeus, *Lea*, 1852, x. 261, 15, 13. Synopsis, 29.

bullatus,* *Raf.* Ann., Sept., 1820, v. 41. Poulson's Trans., 22.
Con. Monog. 82, 45, 2.
Ferussac, Guerin's Mag. 28.
U. verrucosus albus, Hildreth, Sillim. Journ., xiv. 289.
U. pustulosus, *Lea*, 1832, iv. 76, 7, 7. Synopsis, 22.
Chenu, Conchyl. Unio, pl. 18, fig. 2.

capax, *Green*, Cab. Nat. Hist., 1832, ii. 290.
Con. Monog. 75, 42.
Ferussac, Guerin's Mag., 1835, 26.
Symphynota globosa, *Lea*, 1834, iv. 153, 4, 12.
U. capax, *Kust.*, Chemn. Unio, 21, 15, 3.
Lea, Synopsis, 27.

cælatus, *Con.*, Sillim. Journ., 1834, xxv. 338, 1, 2.
Lea, Synopsis, 20.

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[*] Say makes this species the same as *Mya nodulosa*, Wood, which is very different, and evidently not in American species.

Unio caliginosus, *Lea*, 1845, x. 79, 7, 21. Synopsis, 29.
callosus, *Lea*, 1841, viii. 239, 23, 54. Synopsis, 33.
camptodon, *Say*, Amer. Conch. pl. 42.
Ferussac, Guerin's Mag. 26.
U. Sayi, *Lea*, (not Tappan). Synopsis, 32.
capsæformis, *Lea*, 1834, iv. 143, 2, 4. Synopsis, 33.
Con. Monog. 72, 40, 2, 3.
cardium, *Raf.*, Ann. 1820, 32. Poulson's Trans. 27.
Say, Amer. Conch. 32, Synonym. of Unio, No. 11.
U. ventricosus, *Barnes*, Sillim. Journ. vi. 267, 13, 14.
U. occidens, *Lea*, 1832 (?) iii. 435, 10, 16.
Synopsis, 26.
Chenu, Conchyl. Unio, pl. 13, fig. 5.
U. subovatus, *Lea*, 1832, iv. 118, 18, 46.
Chenu, Conchyl. Unio, pl. 12, fig. 6.
U. ovata, var. *b*. (?) Lam. An. vi. 75.
cariosus, *Say*, (*b*) Nicholson's Ency., article Conch., pl. 3, fig. 2.
Lam. Desh. An. sans Vert. vi. 545.
U. ovata, *Valen*.
U. cariosus, *Kust.*, Chem. Unio, 24, 1, 2, 3.
Barnes, Sillim. Journ. vi. 271.
Con. Monog. 40, 19.
Gould, Invertebrata of Mass., 107.
Dekay, Zool. of New York, 193.
Lea, Synopsis, 27.
Lampsilis cariosa, Agas. MSS. Stimpson's Shells of New Eng. 14.
Carolinanus, *Bosc*. *Fer*. Guerin's Mag. 26.
U. obesus, *Lea*, 1832, iv. 96, 13, 26. Synopsis, 32.
Chenu, Conchyl. Unio, pl. 18, fig. 4.
castaneus, *Lea*, 1832, iv. 91, 11, 21. Synopsis, 26.
Ferussac, Guerin's Mag. 28.
Chenu, Conchyl. Unio, pl. 11, fig. 5.
catillus, *Con.*, Monog. 1836, 30, 13, 2.
Kust., Chemn. Unio, pl. 10, fig. 2.
cerinus, *Con.*, (c) Monog. 1838, 95, 52.
U. flavus, *Lea*, (not Raf.) Synopsis, 24.
cicatricosus, *Say*, Disseminator, 1829.
Con., Monog., 115, 64.
Ferr., Guerin's Mag., 28.
U. varicosus, *Lea*, 1832, iv. 100, 11, 20. Synopsis, 23.
Chenu, Conchyl. Unio, pl. 2, fig. 6.
Cincinnatiensis, *Lea*, 1841, viii. 194, 8, 4. Synopsis, 22.
Chenu, Conchyl. Unio, pl. 30, fig. 3.
Claibornensis, *Lea*, 1838, (young shell,) vi. 105, 24, 115. Synopsis, 28.
Chenu, Conchyl. Unio, pl. 23, fig. 3.
U. obtusus (?) *Lea*, viii. 201, 11, 13.
Clarkianus, *Lea*, 1852, x. 273, 21, 30. Synopsis, 28.
clava, *Lam*. An. sans Vert. vi. 74. *Desh*. ed. of Lam. vi. 537.
Ferussac, Guerin's Mag., 28.
Con., Monog., 5, 3.
U. mytiloides, *Raf.*, v. 47, Poulson's Trans., 47.
U. scalenia, *Raf.*, Ann. v. 43, Poulson's Trans., 47.
U. cuneatus, *Raf.*, Ann. v. 47, Poulson's Trans., 53.
Say, Amer. Conch. Syn. No. 35.
U. modioliformis, *Say*, (not Lea.)
U. clavus, *Lea*, Synopsis, 26.
Kust, Chemn. Unio, 39, 7, 2.

nio coccineus, *Hildreth*, MSS.
Con., Monog., 1836, 29, 13, 1.
Lea, 1838, Synopsis, 35, vi. 12, 5, 12.
collinus, *Con.*, Monog., 65, 36, 2, and 159, 60, 3.
Lea, Synopsis, 23.
complanatus, *Soland. Lea*, (*e*)
Mya complanata, Soland. Portland Catalogue, 100.
Dillwyn, Catalogue, i. 51.
U. complanatus, *Lea*, Synopsis, 32.
violaceus, *Speng.*, Ferrus. Guerin's Mag. 26.
coarctata, *Lam.*, Anim. vi. 75.
Desh. ed. of Lam. vi. 535.
Enc. Method, ii. 581.
purpurascens, *Lam.*, Desh. ed. vi. 536.
rhombula, " var. b. " " "
carinifera, " " " "
Georgina, " " " "
sulcidens, " " " 540.
glabrata, " " " 537.
rarisulcata, " " " 534.
aurata, *Raf.*, Ann. Poulson's Trans. 27.
jejunus? *Lea*, vi. 9, 4, 9.
Chenu, pl. 20, fig. 1.
Roanokensis? *Lea*, vi. 27, 8, 21. Synopsis, 32.
Delessert, Recueil. de Conchyl. pl. 12, fig. 3.
Chenu, pl. 12, fig. 5.
complanatus, *Gould*, Invert. of Mass. 107, 68, 69, 70.
Dekay, Zool. of New York, 188, 22, 246.
Agas., Stimpson's Shells of N. Eng. 13.
purpureus, *Say*, Nicholson's Enc. fig. 3.
Barnes, Sillim. Journ. vi. 264.
concavus, *Lea*, 1852, x. 260, 15, 1, 1. Synopsis, 29.
Congaraeus, *Lea*, 1832, iv. 62, 6, 4. Synopsis, 27.
Con., Monog., pl. 12, fig. 1.
Chenu, Conchyl, Unio, pl. 8, fig. 5.
compressissimus, *Lea*, 1845, x. 81, 8, 28. Synopsis, 24.
Conradicus, *Lea*, 1834. Synopsis, 21, v. 63, 9, 2.
Chenu. Conchyl. Unio, 87, 47, 3.
contrarius, *Con.*, Journ. Acad. Nat. Sci., i. 276, 37, 7.
constrictus, *Con.*, Monog., pl. 49, fig. 4.
Lea, Synopsis, 29.
Cooperianus, *Lea*, 1834, v. 61, 8, 21. Synopsis, 22.
cor, *Con.*, New F. W. Shells, 28, 3, 3.
Lea, Synopsis, 26.
cordatus, *Raf.* (Obovaria,) Ann., v. 46, Poulson's Trans. 52.
Con., Monog., 48, 25.
Kust., Chemn. Unio, pl. 13, fig. 1.
creperus, *Lea*, vi. 33, 10, 28. Synopsis, 31.
Chenu, Conchyl. Unio, pl. 23, fig. 5.
crocatus, *Lea*, 1841, Synopsis 27, viii. 238, 22, 52.
Chenu, Conchyl. Unio, pl. 33, fig. 1.
Cumberlandianus, *Lea*, 1838, vi. 25, 7, 19. Synopsis, 30.
U. Cumberlandicus, Chenu, pl. 24, fig. 1.
U. glaber? *Lea*.
cuneolus, *Lea*, 1842, viii. 193, 7, 3. Synopsis, 24.
Chenu, Conchyl. Unio, pl. 30, fig. 2.

Unio Cuvierianus, *Lea*, 1852, x. 263, 16, 16. Synopsis 32.
c *f.*, Poulson's Trans. 39, v. 59.
g. 113, 63.
, *Green*, Contributions to Maclurian Lyceum, i. 46, 3.
psis, 23.
Say, Nicholson's Enc. pl. 4, fig. 3.
mis, *Lam.*, An. vi. 75, *Desh.* ed. 537.
lenoides, *Raf.*, Ann. v. 32, Poulson's Trans. 26.
a cylindrica, *Swains.*, Malac. pl. 271, fig. 54.
icus, *Hildreth*, Silliman's Journ. xiv. 283, fig. 13.
nopsis, 23.
Cy *Philippi*, Conchyl. 1848, 11, 5, 1.
psis, 25.
d 1841, viii. nopsis 36
chyl. Unio
D , 1841, v ynopsis 33.
chyl. Uni
decisu 1832, iv. 92, Synopsis 26.
Con . 3, 2, 6.
. Unio, pl
Conch. Unio,
Guerin's Mag. 28.
declivis, *Say.*, Transylvan c. 1831, iv. 527.
American Conch. p
U. geometricus, *Lea*, 18 0. Synopsis 33.
Desh. Lam. An. sans
delumbis, *Con.*, New Fresh , May, 1834, 35, 5, 3.
U. modioliformis, *Lea*, A 97, 13, 40.
decoratus, *Lea*, 1852, x. 2 ynopsis 19.
dilatatus, *Raf.*, (Elliptio) Ann., v. 31, Poulson's Trans. 25.
Con. Monog. 42, 21.
U. cuprea, *Raf.*, (young) Ann. 38, 51, 8, 9.
U. atroviolacea, *Raf.*, (obliquaria) Ann. v. 55. Poulson's trans. 69.
U. nasutus, *Lam.* not *Say*, An. sans Vert. vi. 538.
Illustrated ed. Cuvier's Regne Animal. Moll. 92, 2.
U. gibbosus, *Barnes*, Sillim. Journ. 1823, vi. 262.
U. arctior? *Lea*, (young) Synopsis, 38, vi. 10, 4, 10.
Chenu, Conchyl. Unio, 33, 2.

discus, *Lea*, 1838, vi. 74, 18, 57. Synopsis 31.
Chenu, Conchyl. Unio, pl. 19, fig. 6.

dolabræformis, *Lea*, 1838, vi. 103, 24, 113. Synopsis 27.
Chenu, Conchyl. Unio, pl. 23, fig. 6.

*dolabelloides, *Lea*, 1842, viii. 215, 15, 31. Synopsis 35.
Chenu, Conchyl. Unio, pl. 29, fig. 4.

Dorfeuillianus, *Lea*, 1838, vi. 73, 17, 54. Synopsis 22.
Chenu, Conchyl. Unio, pl. 25, fig. 5.

dromas, *Lea*, 1834, v. 70, 10, 29. Synopsis 23.
Con. Monog. 84, 46, 2.
U. caperatus, *Lea*, 1845, x. 75, 5, 14.

Duttonianus, *Lea*, 1841, viii. 236, 22, 50. Synopsis 35.
Chenu, Conchyl. Unio, pl. 32, fig. 4.

Edgarianus, *Lea*, 1841, viii. 214, 15, 30. Synopsis 25.
Chenu, Conchyl. Unio, pl. 29, fig. 5.

Eastbrookianus, *Lea*, 1845, x. 77, 6, 17. Synopsis 40.

exiguus, *Lea*, 1842, viii. 191, 7, 1. Synopsis 27.
Chenu, Conchyl. Unio. pl. 30, fig. 1.

nio excultus, *Con.*, Monog. 99, 55, 1.
U. declivis, *Lea*. (not *Say*,) Synopsis 33.

famelicus, *Gould*, Lea, Synopsis 31.

fasciolaris, *Raf.*, Ann. v. 37, Poulson's Trans. 36.
Fer. Guerin's Mag. 1835, 27.
Say, Amer. Conch. Syn. No. 20.
U. phaseolus, *Hildreth*, Sillim. Journ. xiv. 383.
Lea, Synopsis, 38.
U. sinuatus, *Raf.*, (very old) Ann. v. 55.
U. mucronatus, *Barnes*, Sillim. Journ. vi. 266, 13, 13.
U. planulatus, *Lea*. iii. 431, 9, 13.
Chenu, Conchyl. Unio, pl. 13, fig. 1.
U. cuneatus, *Barnes*, (white var.) Fresh Water Shells, Sillim. Journ. note to Hildreth, xiv. 283.
U. phaseolus, *Say*, Amer. Conch. pl. 32.
U. planulata, *Desh.*, Lam. vi. 549.
U. camelus, *Lea*, (old) 1834, v. 102, 15, 45.

fasciatus, *Ann*. Poulson's Trans. 28.
Say, Amer. Conch. Syn. of Unio, No. 6.
Fer. Guerin's Mag. 1835, 27.
Con. Monog. 3, 1.
U. Crassus ? *Say*, Nicholson's Encyc. pl. 1, fig. 3.
U. carinatus, *Barnes*, Silliman's Journ. vi. 126.
U. ellipticus, " " 259, 13, 19.
Hildreth, " xiv. 278.

fasciolus, *Raf*. Ann. v. 33, Poulson's Trans. 28.
U. subangulatus, *Lea*, x. 209, 13, 23.

fatuus, *Lea*, viii. 201, 11, 14, Synopsis, 38.
Chenu. Conchyl. Unio, pl. 31, fig. 4.

Fisherianus, *Lea*, 1838, vi. 8, 4, 8, Synopsis 37.
Chenu, Conchyl. Unio, pl. 20, fig. 4.
U. nasutus, var. *Con.*, not *Say*, Monog. 38, 18, 1.

flavescens, *Lea*, 1845, x. 72, 3, 9, Synopsis 27.

flavus, *Raf.*, Ann. v. 39, Poulson's Trans. 38.
Con. Monog. 74, 41, 2.
Fer. Guerin's Mag. 1835, 27.
Say, Amer. Conch. Syn., No. 22.
U. rubiginosus, *Lea*, 1832, iii. 427, 8, 10, Synopsis 24.
Chenu, Conchyl. Unio, pl. 13, fig. 4.

flexuosus, *Raf*. Ann. v. 40, Poulson's Trans. 41.
Con. Monog. 8, 4, 2.
Say, Amer. Conch. Syn., No. 27.
U. foliatus, *Hildreth*, Sillim. Journ. xiv. 284, 16.
Lea, Synopsis, 20.

Floridensis, *Lea*, 1852, x. 274, 21, 31, Synopsis 39.
folliculatus, *Lea*, 1838, vi. 38, 11, 33, Synopsis 35.
Chenu, Conchyl. Unio, pl. 23, fig. 4.

Forbesianus, *Lea*, 1852, x. 264, 16, 17, Synopsis 24.
U. congaræus ? *Lea*.

Foremanianus, *Lea*, 1841, viii. 247, 27, 64, Synopsis 23.
Chenu, Conchyl. Unio, pl. 26, fig. 1.

fragosus, *Con.*, Monog. 12, 6, 2.
Lea, Synopsis, 22.

fraternus, *Lea*, 1852, x. 263, 16, 15, Synopsis 32.

fulgidus, *Lea*, 1845, x. 73, 4, 10, Synopsis 25.

Unio furvus, *Con.*, New F. W. Shells, 39, 6, 3.
Lea, Synopsis 40.
U. Hanleyanus? x. 279, 23, 37.
U. Troschelianus? x. 286, 23, 39.
fuliginosus, *Lea*, 1845, x. 280, 23, 37, Synopsis 33.
fuscatus, *Lea*, 1846, ix. 277, 40, 4, Synopsis 30.
Geddingsianus, *Lea*, 1841, viii. 202, 11, 15, Synopsis 33.
Chenu, Conchyl. Unio, pl. 31, fig. 3.
Georgianus, *Lea*, 1841, viii. 235, 21, 49, Synopsis 27.
Chenu, Conchyl. Unio, pl. 32, fig. 3.
*gibber, *Lea*, vi. 35, 10, 30. Synopsis 24.
Chenu, Conchyl. Unio, pl. 23, fig. 2.
Gibbesianus, *Lea*, 1852, x. 254, 12, 2, Synopsis 33.
*glaber, *Lea*, 1838, vi. 34, 10, 29, Synopsis 31.
Chenu, Conchyl. Unio, pl. 24, fig. 3.
glans, *Lea*, 1832, iv. 82, 8, 12, Synopsis 31.
Chenu, Conchyl. Unio, pl. 8, fig. 9.
U. Brumbyanus, *Lea*, 1841, viii. 245, 26, 62.
Gouldii, *Lea*, 1845, x. 76, 6, 16, Synopsis 29.
*graniferus, *Lea*, vi. 69, 19, 60, Synopsis 22.
Chenu, Conchyl. Unio, pl. 25, fig. 3.
Greenii, *Con.*, New Fresh Water Shells, 1834. 32, 4, 1.
Monog. 69, 38, 2.
Lea, Synopsis, 27.
U. simplex, *Lea*, 1845, x. 76, 5, 15, Synopsis 27.
Griffithianus, *Lea*, 1834, v. 103, 15, 46, Synopsis 33.
Haleianus, *Lea*, 1842, viii. 247, 27, 63, Synopsis 31.
Chenu, Conchyl. Unio, pl. 26, fig. 6.
Hayesianus, *Lea*, 1834, v. 35, 3, 7, Synopsis 26.
hebes, *Lea*, 1852, x. 267, 18, 21, Synopsis 26.
heterodon, *Lea*, 1833, iii. 428, 8, 11, Synopsis 24.
Con. Monog. 90, 49, 3.
Fer. Guerin's Mag., 1835, 26.
Chenu, Conchyl. Unio, pl. 16, fig. 2.
Holstonensis, *Lea*, 1841, viii. 212, 15, 27, Synopsis 25.
Chenu, Conchyl. Unio, pl. 32, fig. 1.
hyalinus, *Lea*, 1845, x. 69, 2, 4, Synopsis 39.
Hydianus, *Lea*, 1838, vi. 14, 6, 14, Synopsis 28.
Chenu, Conchyl. Unio, pl. 17, fig. 3.
U. Claibornensis? *Lea*.
icterinus, *Con.* New Fresh Water Shells, May 1834, 41, 6, 5.
Monog. 39, 18, 2.
U. fulvus, *Lea*, Aug. 1834, v. 96, 13, 39.
ineptus, *Lea*, 1852, x. 261, 15, 12, Synopsis 31.
*infucatus, *Con.* New Fresh Water Shells, 45, 3, 2.
Lea, Synopsis, 20.
U. securiformis? *Con.*
intermedius, *Con.* Monog. 63, 35, 1.
Lea, Synopsis 22.
interruptus, *Raf.* Ann. v. 36, Poulson's Trans. 33.
Con. Monog. 88, 48.
Fer. Guerin, Mag. 28.
Say. Amer. Conch. syn. No. 26.
U. brevidens, *Lea*, vi. 15, 6, 15, Synopsis 32.
Chenu, Conchyl. Unio, pl. 8, fig. 6.

aio Jayensis, *Lea*, 1838, vi. 28, 9, 23. Synopsis, 37.
Chenu, Conchyl. Unio, pl. 22, 4.
*jejunus, *Lea*, 1838, vi. 9, 4. 9. Synopsis, 32.
Keinerianus, *Lea*, (Kienerianus?) 1852, x. 281, 23, 40. Synopsis, 22.
Kirtlandianus, *Lea*, 1834, v. 98, 14, 41. Synopsis, 35.
Kleinianus, *Lea*, 1852, x. 265, 17, 18. Synopsis, 20.
lanceolatus, *Lea*, 1832, iii. 266, 3, 2. Synopsis, 36.
Con. Monog. 32, 14, 2.
Chenu, Conchyl. Unio, pl. 8, fig. 1.
lapillus, *Say*, Trans. Journ. 1831, iv. 528. Amer. Conch. 41.
Con. Monog. 54, 29, 2.
U. fabalis, *Lea*, 1832, iv. 96, 10, 16. Synopsis, 31.
Chenu, Conchyl. Unio, pl. 8, fig. 4.
lævigatus, *Raf.* Ann. (Elliptio) v. 50, 80, 11, 12, 13, Poulson's Trans. 24.
U. lens, *Lea*, 1832, iv. 80, 8, 10. Synopsis, 34.
Chenu, Conchyl. Unio, pl. 30, fig. 4.
latiradiatus, *Con.*, Monog. 96, 53.
U. interruptus, *Lea*, 1838, vi. 15, 6, 15. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 17, fig. 4.
lazarus, *Lea*, 1852, x. 259, 14, 9. Synopsis, 39.
Lecontianus, *Lea*, 1838, vi. 40, 12, 35. Synopsis, 26.
Chenu, Conchyl. Unio, pl. 24, fig. 6.
lenior, *Lea*, 1841, viii. 204, 12, 18. Synopsis, 38.
Chenu, Conchyl. Unio. pl. 27, fig. 4.
Lesueurianus, *Lea*, 1842, viii. 195, 8, 6. Synopsis, 35.
Chenu, Conchyl. Unio, pl. 30, fig. 4.
lineatus, *Lea*, 1841, viii. 206, 12, 20. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 28, fig. 1.
lienosus *Con.*, Sillim. Journ. xxv. 339, 1, 4; Monog. 91, 49, 4.
Lea, Synopsis, 29.
U. obscurus, *Lea*, vi. 7, 3, 7.
Chenu, Conchyl. Unio, pl. 17, fig. 1.
ligamentinus, *Lam.* Ann. sans Vert. Desh. ed. vi. 533.
U. fasciolus, *Con.* (not *Raf.*) Monog. 26, 11, 2.
U. multiradiatus, *Lea*, 1832, iii. 48, 9, 15. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 13, fig. 2.
limatulus, *Con.* Journ. Acad. Nat. Sc. 2d ser. 1849, i. 276, 37, 9.
Lea, Synopsis, 32.
U. Tuomeyi, *Lea*, 1852, x. 256, 13, 4. Synopsis, 33.
lineolatus, *Raf.* (obliquaria) Ann. 37, Poulson's Trans. 35.
Say, American Conch. pl. 68.
Synonym of Unio, No. 18.
Fer. Guerin's Mag. 1835, 28.
U. depressa, *Raf.* (not *Lam.*) Ann. v.
U. securis, *Lea*, 1832, iii. 437, 11, 17. Synopsis, 24.
Chenu, Conchyl. Unio, pl. 16, fig. 4.
luridus, *Lea*, x. 273, 20, 29. Synopsis, 30.
luteolus, *Lam.* *Desh.* An. sans Vert. vi. 544.
Dekay, Zool. of New York, 190, 20, 241.
Lea, Synopsis, 28.
U. siliquoideus, *Con.* Monog. 22, 10, 1.
Fer. Guerin's Mag. 1835, 27.
U. siliquoideus, *Barnes*, Sillim. Journ. vi. 267.
U. inflatus, ib. ib. 267.
Lampsilis siliquoideus, *Stimpson*, Shells of New England, 14.

Unio lugubris, *Lea*, vi. 30, 9, 25. Synopsis, 38.
Chenu, Conchyl. Unio, pl. 20, fig. 3.
maculatus, *Con.* New Fresh Water Shells, May, 1834, 30, 4, 4.
Lea, Synopsis, 24.
U. Ravenelianus, *Lea*, Aug. 1834, v. 32, 3, 5.
Masoni, *Con.* Monog. 28, 12, 2.
Lea, Synopsis, 34.
Kust. Chem. Unio, pl. 5, fig. 6.
mœstus, *Lea*, 1841, viii. 244, 26, 60. Synopsis, 31.
Chenu, Conchyl. Unio, pl. 28, fig. 3.
merus, *Lea*, 1852, x. 260, 15, 10. Synopsis, 33.
Menkianus, *Lea*, 1838, vi. 76, 19, 59. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 19, fig. 4.
Metallicus, *Say*, Dissem. 1830.
Amer. Conch. Synonym of Unio, No. 51.
U. cuprinus, *Lea*, 1834, iv. 94, 12, 24. Synopsis, 38.
Chenu, Conchyl. Unio, pl. 11, fig. 3.
metanever, *Raf.* Ann. v. 39. Poulson's Trans. 39.
Fer., Guerin's Mag. 1835, 27.
U. metanevrus, *Say*, Amer. Conch. Synonym of Unio, 24.
Con., Monog. 10, 5, 2.
Kust. Chemn. Unio, pl. 10, fig. 4.
U. nodosus, *Barnes*, Sillim. Journ. vi. 124, 6, 7.
U. rugosus, (?) ib. ib. vi. 126, 8, 9.
U. metanever, *Lea*, Synopsis, 22.
minor, *Lea*, 1846, ix. 276, 39, 2. Synopsis, 31.
Mississippiensis, *Con.*, Journ. Acad. Nat. Sc. ii. 277, 38, 11.
Lea, Synopsis, 29.
Mortoni, *Con.* Monog. Dec. 1835, 11, 6, 1.
Kust. Chemn. Conchyl. Unio, pl. 11, fig. 1.
U. turgidus, *Lea*, 1837, vi. 11, 5, 11.
Chenu, Conchyl. Unio, pl. 25, fig. 1.
Mühlfeldianus, *Lea*, 1838, vi. 41, 12, 36. Synopsis, 30.
Chenu, Conchyl. Unio. pl, 17, fig. 5.
Monroensis, *Lea*, 1841, ix. 279, 41, 8. Synopsis, 29.
Moussianus, *Lea*, 1852, x. 268, 18, 22. Synopsis, 29.
Nashvillianus, *Lea*, 1834, v. 100, 14, 43. Synopsis, 29.
nasutus, *Say*, Nicholson's Ency. article Conch. pl. 4, fig. 1.
Lister's Conch., t. 151, fig. 6.
Con. Monog. 38, 18, 1.
Gould, Invert. of Mass. 109.
Dekay, Zool. of New York, 191, 20, 239.
Lea, Synopsis, 37.
Mya nasuta, *Wood.*, Index Text. Sup. pl. 1, fig. 4.
U. rostratus, *Valenc.* Humb. and Bonpl., ii. 223, 53, 3.
Eurinea nasuta, *Agas.* *Stimpson's* Shells of New England, 13.
*nebulosus, *Con.* New Fresh Water Shells, 28, 3, 7.
neglectus, *Lea*, 1846, ix. 280, 42, 10. Synopsis, 33.
nexus, *Say*, Transyl. Journ. 1831, iv. 527.
Amer. Conch. pl. 51.
Con. Monog. 68, 38, 1.
Fer. Guerin's Mag. 1835, 28.
U. arcæformis, *Lea*, 1832, iv. 116, 17, 44. Synopsis, 13.
Chenu, Conchyl. Unio, pl. 12, fig. 3.

nervosus, *Raf.* Ann. v. 30. Poulson's Trans. 22.
Say, Amer. Conch. Synonym. of Unio, No. 6.
U. zigzag, *Lea*, iii. 440, 12, 19. Synopsis, 24.
U. Donaciformis, iii. 267, 4, 3. Synopsis, 24.

nigellus, *Lea*, x. 283, 24, 42. Synopsis, 30.

niger, *Raf.* Ann. v. 25. (Elliptio,) Poulson's Trans. 15.
Con. Monog. 49, 26.
Fer. Guerin's Mag. 1835, 27.
Lister's Conch. pl. 150, fig. 5.
U. incrassatus, *Lea*, 1842, viii. 217, 16, 34. Synopsis, 24.
Chenu, Conchyl. Unio, pl. 31, fig. 5.
U. gibber, (?) *Lea*.

nigerrimus, *Lea*, 1852, x. 268, 18, 23. Synopsis, 31.

nigrinus, *Lea*, x. 284, 24, 44. Synopsis, 39.

nitens, *Lea*, viii. 205, 12, 19. Synopsis, 29.
Chenu, Conchyl. Unio, pl. 28, fig. 5.

nodiferus, *Con.*, (*g*) Journ. Acad. Nat. Sc. second ser. i. 277, 38, 4, 8.
U. prasinus, *Lea*, (not *Con.*) Synopsis, 22.

nodulatus, *Raf.* Ann. v. 41, 81, 17, 18. Poulson's Trans. 42.
Say, Amer. Conch. Synonym of Unio, No. 6.
Fer., Guerin's Mag. 1835, 28.
U. pustulatus, *Lea*, 1832, iv. 79, 7, 9. Synopsis, 22.
Chenu, Conchyl. Unio, pl. 15, fig. 8.

notatus, *Lea*, 1838, vi. 28, 8, 22. Synopsis, 29.

Novi-Eboraci, *Lea*, 1838, vi. 104, 24, 114. Synopsis, 27.
Dekay, Zool. of New York, 194, 20, 240.
Chenu, Conchyl. Unio, pl. 19, fig. 5.

nucleopsis, *Con.*, Journ. Acad. Nat. Sc. 2d ser. i. 276, 37, 8.
Lea, Synopsis, 35.

nexus, *Say*, Transylvania Journ. 1831, iv. 527. Amer. Conch. 51.
Con. Monog. 68, 38, 1.
Ferussac, Guerin's p. Mag. 28.
U. arcæformis, *Lea*, 1832, iv. 116, 17, 44. Synopsis, 28.

notatus, *Lea*, 1838, vi. 28, 8, 22. Synopsis, 29.
Chenu, Conchyl. Unio, pl. 21, fig. 3.
U. simus, *Lea*, vi. 26, 8, 20.
Chenu, Conchyl. Unio, pl. 21, fig. 4.

obliquus, *Lam.* An. sans Vert. vi. 72.
Con. Monog. 77, 43, 2.
U. obliquus, *Fer.* Guerin's Mag. 1835.
U. ebenus, *Lea*, 1832, iv. 84, 9, 14. Synopsis, 36.
Chenu, Conchyl. Unio, pl. 15, fig. 7.
U. undatus, *Desh.* (not *Barnes*) Desh. ed. of Lam. vi. 534.
U. mytiloides, (?) *Swain.* (not *Raf.*) 43. Malac. 270, fig. 53.

obliquatus, *Raf.* (obliquaria) Ann. v. Poulson's Trans. 46.
Say, Amer. Conch. Synonym of Unio, No. 33.
U. ridibundus, *Say*, Disseminator.
U. sulcatus, *Lea*, iii. 430, 8, 12. Synopsis, 26.
Chenu, Conchyl. Unio, pl. 13, fig 3.

obovalis, *Raf.* v. 45. Poulson's Trans. 49.
U. solidus, *Lea*, vi. 13, 5, 13. Synopsis, 26.
Chenu, Conchyl. Unio, pl. 25, fig. 2.

obtusus, *Lea*, viii. 201, 11, 13. Synopsis, 30.
Chenu, Conchyl. Unio, pl. 31, fig. 2.

occidentalis, *Con.* Monog. 64, 36, 1.
Lea, Synopsis, 33.

Unio ochraceus, *Say*, (*h*) Nicholson's Encyclopedia, iv. 4, 2, 8.
Pectunculus fluviatilus, *List.* Conch. pl. 157, fig. 12.
Mytilus fluviatilus, *Gmel.* Dillwyn's Cat. 316.
Symphynota ochracea, *Lea*, iii. 69.
U. ochraceus, *Con.* Monog. 37, 17, 2.
Gould, Invert. of Mass. 112, 74.
Dekay, Zool, of New York. 193, 19, 137, 138.
U. rosaceus, (?) *Con.* (not *Dekay*) Jour. Ac. Nat. Sc. 2d ser. 275, 37, 5.
Olivarius, *Raf.* Ann. v. Poulson's Trans. 28.
Fer. Guerin's Mag. 1835, 28.
U. ellipsis, *Lea*, iii. 268, 4, 4. Synopsis, 26.
Chenu, Conchyl. Unio, pl. 18, fig. 1.
Ogeecheensis, *Con.* Jour. Acad. Nat. Sc. 2d ser. i. 275, 37, 3.
oratus, *Con.* Jour. Acad. Nat. Sc. 2d ser. 276, 37, 6.
orbiculatus, *Hild.* 1828, Sillim. Jour. xiv. 284, fig. 15.
Lea, Synopsis, 28.
U. abruptus, *Say*, Amer. Conch. pl. 17.
U. crassus, *Con.* Monog. 34, 16.
ovatus, *Say*, Nicholson's Encyclopedia, iv. 7, 2.
Lam. Anim. sans. Vert. vi. 75.
Con. Monog. 4, 2.
Fer. Guerin's Mag. 1835, 26.
Kust. Chemn. Unio, 22, 3, 2.
Lea, Synopsis, 24.
U. ventricosus, *Desh.* (not *Barnes*), Desh. ed. of Lam. vi. 538.
U. subovatus, ib. (not *Lea.*)
U. occidens, (?) ib. ib. 528.
oviformis, *Con.*, New Fresh Water Shells, 46, 3, 6.
Lea, Synopsis, 26.
pallescens, *Lea*, 1845, x. 79, 7, 20. Synopsis, 27.
paliatus, *Lea*, 1845, x. 79, 7, 20. Synopsis, 33.
paludicolor, *Gould*, Proceed. Bost. S. N. H. ii. 63.
Lea, Synopsis, 33.
papyraceus, *Gould*, Proceed. Bost. S. N. H. ii. 58.
Lea, Synopsis, 38.
parvus, *Barnes*, Sillim. Journ. vi. 174.
Con. Monog. 20, 9, 1.
Philippi, Conchyl. 19, 1, 2.
Lea, Synopsis, 31.
paulus, *Lea*, viii. 213, 15, 29. Synopsis, 31.
Chenu, Conchyl. Unio, pl. 27, fig. 5.
pectorosus, *Con.* New Fresh Water Shells, May, 1834, 37, 6, 1.
Mong. 25, 11, 1.
Kust. Chemn. Unio, pl. 4, fig. 2.
U. perdix, *Lea*, Aug. 1834, v. 72, 11, 31. Synopsis, 26.
U. biangulatus, *Lea*, viii. 197, 9, 8.
pellucidus, *Lea*, 1845, x. 70, 2, 6. Synopsis, 39.
penitus, *Con.* New Fresh Water Shells, 33, 5, 1.
Lea, Synopsis, 24.
perovatus, Sillim. Journ. xxv. 33, 1, 3.
Con. New Fresh Water Shells, 47, 2, 8.
Lea, Synopsis, 27.
U. nux, *Lea*, x. 283, 24, 43.
perovalis, *Con.* New Fresh Water Shells, 43, 2, 2.
Lea, Synopsis, 27.
pernodosus, *Lea*, 1845, x. 71, 3, 8. Synopsis,

io pectitus, *Con.*, Jour. Ac. Nat. Sc. iii. 2d ser.
persònatus, *Say*, (female) Disseminator, 1829, 309.
Con. Monog. 47, 24.
Kust. Chemn. Unio, pl. 10, fig. 1.
U. capillaris, *Lea*, 1834, v. 29, 2, 2, Synopsis, 36.
U. pileus, *Lea*, (male) 1832, iv. 119, 18, 47, Synopsis, 24.
Chenu, Conchyl. Unio, pl. 15, fig. 2.

perstriatus, *Lea*, 1852, x. 255, 12. 3, Synopsis, 36.
Phillipsii, *Con.* Monog. 9, 5, 1.
Lea, Synopsis, 22.
Kust. Chemn. Unio, pl. 10, fig. 3.

pictus, *Lea*, 1834, v. 73, 11, 32, Synopsis, 27.

pilaris, *Lea*, viii. 209, 14, 24, Synopsis, 35.
Chenu, Conchyl. Unio, pl. 29, fig. 3.

placitus, *Lea*, 1852, x. 279, 23, 38, Synopsis, 29.

planitaleris, *Con.* Monog. 103, 57, 1.

plenus, *Lea*, 1842, viii. 211, 14, 26, Synopsis, 25.

plexus, *Con.* (*j*) Monog. 1836, 89, 49, 1.
U. pliciferus, *Lea*, 1838, vi. 61. 17, 53, Synopsis, 25.
Chenu, Conchyl. Unio, pl. 22, fig. 5.
U. subtrapezius, *Philippi*, Conchyl. 1847, 12, 5, 2.
U. carbonarius, *Lea*, (old shell) vi. 37, 11, 32, Synopsis, 20.
Chenu, Conchyl. Unio, pl. 23, fig. 1.

Powellii, *Lea*, 1852, x. 270, 19, 25, Synopsis, 28.

politus, *Say*, Amer. Conch. Synonym. of Unio, No. 6.
U. brevialis? *Lam.* An. sans Vert. 1819, vi. 73.
U. olivarius, var. 2, *Raf.*
U. brevialis, *Crouch*, Illustrated Lamarck, 1827, 16, 9, 3.
U. subrotundus, *Lea*, (not *Raf.*) 1832. iv. 117, 18, 45, Synopsis, 26.
Chenu, Conchyl. Unio, pl. 15, fig. 1.
U. politus, *Con.* Monog. 67, 37, 2.

Prevostianus, *Lea*, 1852. x. 269, 19, 24, Synopsis, 29.

prasinus, *Con.* (*k*) New Fresh Water Shells, May, 1834, 44.
Monog. 79, 44, 2.
U. Schoolcraftensis, *Lea*, Aug. 1834, v. 37, 3, 9.
U. nodiferus, *Lea*, (not *Con.*) Synopsis, 22.

productus, *Con.* Monog. 44.
Kust. Chem. Unio, pl. 16, fig. 2.
Lea, Synopsis, 37.

proximus, *Lea*, 1852, x. 271, 20, 27, Synopsis, 29.

pullus, *Con.*, Monog. 100, 55, 2.
Lea, Synopsis, 31.

*pulvinulus, *Lea*, 1845, x. 81, 8, 24, Synopsis, 26.

pumilis, *Lea*, 1838, vi. 23, 7, 17, Synopsis, 24.
Chenu, Conchyl. Unio, pl. 19, fig 1.

puniceus, *Haldeman*, Journ. Acad. Nat. Sc. viii. 201.

purpuratus, *Lam.* (*l*) *Desh.* An. sans Vert. vi. 533.
Fer., Guerin's Mag. 1835, 26.
U. ater, *Lea*, iii. 426, 7, 9.
U. lugubris, *Say*, Amer. Conch. pl. 43.
U. atra, *Desh.* Enc. Method. Vers. ii. 528.
U. purpuratus, *Lea*, Synopsis, 38.
Mya ventricosa, *Soland.* *Humph.* Catalogue, No. 1064, 59.
Chenu, Conchyl. Unio, pl. 10, fig. 1.

Unio purpuriatus, *Say*, Disseminator, 1829.
U. Medellinus, *Lea*, 1838, vi. 39, 12, 34, Synopsis, 29.
Chenu, Conchyl. Unio, pl. 17, fig. 6.
pusillus, *Lea*, viii. 220, 18, 36, Synopsis, 31.
Chenu, Conchyl. Unio, pl. 32, fig. 5.
pygmæus, *Lea*, x. 262, 15, 14, Synopsis, 31.
quadrulus, (m) *Raf*. Ann. v. 41, Poulson's Trans. 42.
Say, Amer. Conch. pl. 53.
Con. Monog. 112, 62.
U. asperrimus, *Lea*, iv. 71, 5, 3. Synopsis, 21.
Chenu, Conchyl. Unio, pl. 9, fig. 2.
U. lachrymosus, *Lea*, iii. 272, 6, 8, (young) pl. 15, 6, Synop. 21.
Chenu, Conchyl. Unio, pl. 15, fig. 6.
radiatus, *Lam*. *Desh*. An. sans Vert. vi. 535.
Mya radiata, *Gmel*. vide Lam.
Mya, *Schrot*. Ell. 614.
Mya radiata, *Dillwyn*, Cat. i. 51.
Mya pictorum tenuis, *Chemn*. vi. 23, 2, 7.
U. Virginiana, *Lam*. *Desh*. An. sans Vert. vi. 544.
Delassert, Recueil de Coquilles, pl. 13, fig. 4.
Mya oblongata, *Wood*, Supplement to Index Test. pl. 5, fig 2.
Conchyl. pl. 12, fig. 4.
U. ochraceus, *Desh*. (not *Say*,) ed. Lam. vi. 536.
U. radiatus, *Con*. Monog. 24, 10, 2.
Lea, Synopsis, 24.
Dekay, Zool. of New York, 189, 18, 236.
Gould, Invert. of Mass. 110.
Lampsilis radiata, *Agas*. MSS. *Stimpson's* Shells of New Eng. 13.
*Rangianus, *Lea*, 1838, vi. 85, 18, 56, Synopsis, 25.
Chenu, Conchyl. Unio, pl. 24, fig. 5.
Ravenelianus, *Con*. New Fresh Water Shells, May, 1834, 39, 6, 4.
U. confertus *Lea*, Aug., 1834, v. 103, 16, 47, Synopsis, 30.
U. Watereensis, *Lea*, Aug., 1838, v. i. 130, note, Synopsis, 33.
rectus, *Lam*. An. sans Vert. vi. 74, Desh. ed. 537.
Con. Monog. 33, 15.
U. latissima, (Elliptio,) *Raf*. Ann. v. 31, Poulson's Trans. 25.
U. prælongus, *Barnes*, Sillim. Jour. vi. 261.
U. rectus, *Kust*. Chemn. Conchyl. 35, 6, 1.
Lea, Synopsis, 35.
Eurinea prælonga, *Agas*. MSS. *Stimpson's* Shells of New Eng. 13.
Reevianus, *Lea*, 1852, x. 272, 20, 28, Synopsis, 28.
reflexus, *Raf*. Ann. v. 40, Poulson's Trans. 40.
Con. Monog. 7, 4, 1.
Fer. Guerin's Mag. 1835, 28.
Say, Synonym. of Unio, No. 25.
Kust. Chemn. Unio, pl. 11, fig. 2.
U. cornutus, *Barnes*, Sillim. Journ. vi. 122.
Lea, Synopsis, 22.
regularis, *Lea*, 1841, viii. 243, 25, 59, Synopsis, 29.
Chenu, Conchyl. Unio, pl. 33, fig. 3.
retusus, *Lam*. *Desh*. An. sans Vert. vi. 534.
Fer. Guerin's Mag. 1835, 28.
Say, Amer. Conch. Synonym. of Unio, No. 26.
Con. Monog. 1, 19, 8.
Lea, Synopsis, 35.
U. torsa, *Raf*. Ann. v. 45, 82, 1, 2, 3, Poulson's Trans. 49.
Kust. Chemn. Conchyl. Unio, pl. 13, fig. 2.
U. obtusa, *Cuv*. Regne Animal, illust. edit. pl. 92, fig. 1.

nio rivularis, *Con.* Journ. Acad. Nat. Sc. 1853, iii. 2d series.
U. declivis, *Con.* (not *Say*) Monog. 45, 23, 1.
Kust. Chemn. Unio, pl. 14, fig. 1.
Lea, Synopsis, 33.

*Roanokensis, *Lea*, 1838, vi. 27, 8, 21. Synopsis, 32.

rosaceus, *Dekay*, Zool. of New York, 192, 39, 355, 356, and pl. 40, fig. 357.

rotundatus, *Lam.* An. sans Vert. Desh. ed. vi. 538.
U. suborbiculata, *Lam. Desh.* ib. 546.
decorticata, *Raf.* Ann. v. 36, Poulson's Trans. 33.
globulus, *Say*, Amer. Conch. pl. 34,
subglobosus, *Lea*, v. 30, 2, 3.
rotundatus, *Lea*, Synopsis, 34.

rubellus, *Con.* New Fresh Water Shells, 38, 6, 2.
Lea, Synopsis, 34.

Ruber, *Raf.* v. 48. Poulson's Trans. 55.
U. pyramidatus, *Lea*, iv. 109, 16, 39. Synopsis, 25.
Chenu, Conchyl. Unio, pl. 16, fig. 5.
U. coccineus, *Jay*, (not *Hildreth*,) Catalogue, 66.

rudis, *Con.* Monog. 76, 43, 1.
U. Ravenelianus, *Lea*, v. 32, 3, 5. Synopsis, 26.

rufusculus, *Lea*, 1852, x. 258, 14, 7. Synopsis, 33.

Rumphianus, *Lea*, 1852, x. 276, 22, 34.

sagittiformis, *Lea*, 1852, x. 277, 22, 35. Synopsis, 37.

Sapotalensis *Lea*, viii. 233, 21, 47, Synopsis, 29.
Chenu, Conchyl. Unio, pl. 33, fig. 4.

saxeus, *Con.* Monography of North American Unionidæ, 109, 60, 1.

satur, *Lea*, 1852, x. 265, 17, 19. Synopsis, 24.
Lea, Synopsis, 27.

*securiformis, *Con.* Journ. A. N. S. i. 275, 37, 1.

semigranosus, *V. d. Busch.*
Phillippi, Conchyl. Unio, 1, 1, 1, 2, 3.
Lea, Synopsis, 20.

Shepardianus, *Lea*, 1834, v. 95, 13, 38. Synopsis, 35.
Con. Monog. 70, 39.

simus, *Lea*, 1838, vi. 26, 8, 20. Synopsis, 31.

sintoxia,* *Raf.* v. 44, Poulson's Trans. v. 48.

sordidus, *Lea*, 1852, x. 254, 12, 1. Synopsis, 33.

Sowerbianus, *Lea*, 1834, v. 68, 10, 28. Synopsis, 25.
Con. Monog. 66, 37, 1.

sparsus, *Lea*, 1841, viii, 242, 25, 58. Synopsis, 22.
Chenu, Conchyl. Unio, pl. 26, fig. 2.

spatulatus, *Lea*, 1845, x. 80, 8, 22.

spinosus, *Lea*, vi. 57, 16, 50. Synopsis, 23.
Chenu, Conchyl. Unio, pl. 22, fig. 6.

splendidus, *Lea*, vi. 70, 19, 61. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 17, fig. 7.

stagnalis, *Con.* Journ. Acad. Nat. Sc. 2d ser. i. 275, 37, 2.
Lea, Synopsis, 27.

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*The specimen in Mr. Poulson's cabinet labelled *sintoxia* by Rafinesque is large compressed shell, similar in outline to *U. coccineus*. Length 3¾ inches; ight 3 inches.

Unio stapes, *Lea*, 1832, iv. 77, 7, 8. Synopsis, 22.
Con. Monog. 83, 46, 1.
Fer. Guerin's Mag. 1835, 28.
Chenu, Conchyl. Unio, pl. 15, fig. 5.

stegarius, *Raf.* Ann. v. 46, Poulson's Trans. 51.
Con. Monog. 83, 46, 1.
Fer. Guerin's Mag. 1835, 28.
U. irroratus, *Lea*, 1852, iii. 269, 5, 5. Synopsis, 22.
Chenu, Conchyl. Unio, pl. 10, fig. 3.

Stewardsonii, *Lea*, 1852, x. 278, 23, 36. Synopsis, 20.

Stonensis, *Lea*, viii. 195, 8, 5. Synopsis, 27.

stramineus, *Con.* Sillim. Journ. xxv. 339, 1, 6.
Monog. 91, 50, 1.
Lea, Synopsis, 28.

striatus, *Lea*, 1841, viii. 203, 12, 16. Synopsis, 26.

strigosus, *Lea*, 1841, viii. 198, 9, 9. Synopsis, 36.
Chenu, Conchyl. Unio, pl. 30, fig. 6.

subinflatus, *Con.* New Fresh Water Shells, Appendix, 1835, 5.
Monog. 97, 54, 1.
U. Hopetonensis? *Lea*, 1838, vi. 29, 9, 24. Synopsis, 32.
Chenu, Conchyl. Unio, pl. 20, 5.

subplanus, *Con.* Monog. 73, 41, 1.
Lea, Synopsis, 33.

subrotundus, *Raf.* (young) Ann. 42. Poulson's Trans. 44.
Say, Amer. Conch. Synonym. of Unio, No. 32.
Fer. Guerin's Mag. p. 28.
U. striatus, *Raf.* (old) Ann. v. 45. Poulson's Trans. 50.
circulus, *Lea*, iii. 433, 9, 14. Synopsis, 34.
Chenu, Conchyl. Unio, pl. 16, fig. 1.

subtentus, *Say*, Journ. Acad. Nat. Sc. v. 130. Amer. Conch. pl. 15.
Con. Sillim. Jour. xxv. 339, 1, 4. Monog. 85, 47, 1.
Fer. Guerin's Mag. 1835.
Lea, Synopsis, 21.

subrostratus, *Say*, Disseminator, 1830.
U. iris, *Lea*, iii. 439, 11, 18. Synopsis, 38.
Chenu, Conchyl. Unio, pl. 8, fig. 7.

symmetricus, *Lea*, 1845, x. 73, 4, 11. Synopsis, 32.

Tampicoensis, *Lea*, vi. 24, 7, 18. Synopsis, 26.
Chenu, Conchyl. Unio. pl. 21, fig. 5.

tæniatus, *Con.* New Fresh Water Shells, 26, 4, 2.
U. pulcher, *Lea*, vi. 6, 3, 6. Synopsis, 28.
Chenu, Conchyl. Unio, pl. 17, fig. 2.

Taitianus, *Lea*, 39, 4, 11. Synopsis, 25.

Tecomatensis, *Lea*, 1841, viii. 234, 21, 48. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 31, fig. 6.

Tennesseensis, *Lea*, 1842, viii. 199, 10, 11. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 27, fig. 1.

tener, *Lea*, 1842, viii. 198, 10, 10. Synopsis, 28.
Chenu, Conchyl. Unio, pl. 31, fig. 1.

tenerus, *Ravenel*, *Lea*, 1834, v. 63, 9, 2. Synopsis, 39.
U. tenebrosus, *Con.* New Fresh Water Shells, 42, 7, 1.

tetralasmus, *Say*, Amer. Conch. pl. 23.
Lea, Synopsis, 32.

nio teres, *Raf.*, Ann. v. 55, Poulson's Trans., 68.
Con. Monog. 52, 28.
Fer., Guerin's Mag., 1835, 27.
Say, Synonym. of Unio, No. 42.
U. Anodontoides, *Lea*, iv. 86, 8, 11. Synopsis, 36.
Chenu, Conchyl. Unio, pl. 14, 3.
trabalis, *Con.* New Fresh Water Shells, May, 1834, 27, 3, 5.
Monog., 110, 60, 2.
U. Troostensis, *Lea*, Aug., 1834, v. 71, 10, 30. Synopsis, 25.
trigonus, *Lea*, 1832, iv. 110, 16, 40. Synopsis, 25.
tortivus, *Lea*, 1842, viii. 204, 12, 17. Synopsis, 24.
Chenu, Conchyl. Unio, pl. 29, fig. 6.
torulosus, *Raf.* (obliquaria) Ann. v. 48, Poulson's Trans., 56.
Fer., Guerin's Mag. 1835, p. 28.
Kust. Chemn. Unio, 28, 4, 3, 4.
Say, Amer. Conch. Synonym. of Unio, No. 40.
U. gibbosus, *Raf.*, *Con.* Monog. 50, 27.
Kust., Chemn. Unio, 28, 4, 3, 4.
U. perplexus, *Lea*, iv. 122, 17, 42. Synopsis, 23.
Chenu, pl. 18, fig. 5.

triqueter, *Raf.*, Ann. v. 34, Poulson's Trans., 31.
U. triangularis, *Barnes*, vi. 272, fig. 17.
U. formosus, *Lea*, iv. 111, 16, 41.
Chenu, Conchyl. Unio, pl. 8, fig. 12.
U. triangularis, *Lea.* Synopsis, 22.

truncatus, *Raf.* Ann. v. 35, Poulson's Trans., 31.
Fer., Guerin's Mag. 1835.
Say, Amer. Conch. Synonym. of Unio, No.
U. elegans, *Lea*, iv. 83, 9, 13. Synopsis, 23.
Chenu, Conchyl. Unio, pl. 15, fig. 3.
trossulus, *Lea*, ix. 278, 40, 6. Synopsis, 25.
tuberosus, *Lea*, 1842, viii. 210, 14, 25. Synopsis, 22.
Chenu, pl. 28, fig. 7.
tumescens, *Lea*, 1845, x. 71, 3, 7. Synopsis, 25.
undatus, (*s*) *Barnes*, Sillim. Journ. vi. 121, 4, 4.
unicolor, *Lea*, 1845, x. 74, 4, 12. Synopsis, 34.
utriculus, *Lea*, 1845, x. 69, 1, 3. Synopsis.
Vanuxemiensis, *Lea*, 1838, vi. 36, 11, 31. Synopsis, 29.
Chenu, Conchyl. Unio, pl. 19, fig. 3.
Vaughnianus, *Lea*, vi. 5, 3, 5. Synopsis, 38.
Chenu, Conchyl. Unio, pl. 21, fig. 1.
velatus, *Con.*, 1853, Journ. Acad. Nat. Sc. iii. 2d series.
venustus, *Lea*, 1838, vi. 4, 2, 4. Synopsis, 27.
Chenu, Conchyl. Unio, pl. 22, fig. 1.

verrucosus, *Raf.* Ann. v. 42, Poulson's Trans., 44.
U. tuberculatus, *Barnes*, Sillim. Journ., vi.
Hildreth, Sillim. Journ., xiv. 281, fig. 8. *Lea*, Synopsis, 23.

viridis, (*o*) *Raf.* Ann. v. 27, Poulson's Trans., 19.
Con., Monog., 36, 17, 1.
U. Tappanianus, *Lea*, vi. 62, 17, 55. Synopsis, 39.
Dekay, Zool. of New York, part i., 194, 20, 242.
Chenu, Conchyl. Unio, pl. 20, fig. 2.

Unio vibex, *Con.* New Fresh Water Shells, 31, 4, 3.
Lea, Synopsis, 30.
Whiteanus, *Lea*, 1852, x. 258, 14, 8. Synopsis, 33.
Zeiglerianus, *Lea*, 1838 (Zieglerianus?) vi. 32, 10, 27. Synopsis, 29.
Chenu, Conchyl. Unio, pl. 24, fig. 2.

METAPTERA, *Raf.*, *Agas.*

Metap. alata.
U. alata, *Say*, Nicholson's Encyclopedia, iv. pl. 4, fig. 2.
Lam. Anim. sans. Vert. 1819, vi. 76. *Desh.* ed. of Lam. vi. 539.
Symphynota alata, *Lea*, iii..448. U. alatus. Synopsis, 19.
Barnes, Sillim. Journ. vi. 260.
Con., Monog., 56, 31.
Metaptera megaptera, *Raf.*, Ann. v. 34, 80, 20, Poulson's Trans., 20.
Symphynota alata, *Lea*, iii. 448. U. alatus. Synopsis, 19.
Lymnadia alata, *Swains.* Malac. 265, 48.
U. alatus, *Kust.* Chemn. Unio. 15, 1, 1.
fragilis.*
Elliptio fragilis, *Raf.* Ann. v. 29, Poulson's Trans., 22.
U. fragilis, *Swains.*, Zool. Illust. 1st ser. pl. 171.
U. fragilis, *Say*, Amer. Conch. Syn. No. 6.
Kust. Chemn. Unio, 19, 3, 1.
U. gracilis, *Barnes*, Sillim. Journ. v. 174.
Symphynota gracilis, *Lea*, iii. 452. U. gracilis. Synopsis, 19.
inflata.
Symphynota inflata, *Lea*, iv. 99, 14, 28.
U. inflatus, *Con.* Monog. 57, 32.
Lea, Synopsis, 19.
Kust. Chem. Unio, 17, 2, 1.
U. Alabamensis, *Con.*, New Fresh Water Shells, p. 67.
Ohiensis.
Lastena Ohiensis, *Raf.* Ann. v. 50, Poulson's Trans., 60.
U. lævissimus, *Lea*, iii. 444, 13, 23. Synopsis, 19.

PLECTOMERUS, *Con.*

Shell subalated, obliquely plicated; cardinal teeth very thick, sulcated, the posterior lobe directed towards the posterior extremity of the shell; posterior muscular impressions scarcely impressed, confluent.

Plect. atromarginatus.
U. atromarginatus, *Lea*, viii. 207, 13, 21. Synopsis, 19.
Chenu, Conchyl. Unio, pl. 28, fig. 6.
Boykianus.
U. Boykianus, *Lea*, viii. 208, 13, 22. Synopsis, 19.
Chenu, Conchyl. Unio, pl. 27, fig. 2.
costatus.
U. costatus, *Raf.* Ann. v. 49, Poulson's Trans., 57.
Con. Monog. 17, 7.
U. undulatus, *Barnes*, Sillim. Journ. v. 120, pl. 2.
Lea, Synopsis, 20.
U. latecostatus, *Lea*, 1845, x. 68, 1, 2.

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* I have not quoted Stimpson for this species, because he says that the Ohio species is different from the shell usually regarded as the same, which inhabits Lake Champlain, and he refers only to the latter. Rafinesque described the Western shell. As Say's *U. alatus* was found in lake Erie, I do not know whether Agassiz considers it the same as the Ohio species, or as that of Lake Champlain.

'lect. crassidens.
U. crassidens,* (*a*) *Lam.*, An. sans Vert. vi. 71.
interruptus, *Say.*, Transylvania Journ., 1831, iv. 525.
Amer. Conch. pl. 33.
trapezoides, *Lea*, 1838, vi. 69, 3, 1, Synopsis, 21.
Chenu, Conchyl. Unio, pl. 28, fig. 6.
Nicklinianus.
U. Nicklinianus, *Lea*, v. 28, 1, 1, Synopsis, 19.
perplicatus, *Con.* Proc. Acad. Nat. Sci. 2d ser. i. 19.
Journ. Acad. Nat. Sc. ii. 276, 38, 2.
U. atrocostatus, *Lea*, Aug. 1845, x. 70, 2, 15, Synopsis, 20.
*plectophorus, *Con.* Journ. Acad. Nat. Sc. i. 2d ser. 277, 38, 7.
plicatus.
U. plicatus, *Say*, Nicholson's Enc., article Conch. iv.
Barnes, Sillim. Journ. vi. 120, 3, 3.
Lea, Synopsis, 20.
U. Peruviana, *Lam.*, An. sans Vert. vi. 71.
Enc. Method. pl. 248, fig. 7.
U. rariplicata, *Lam.*, vi. 71. *Desh.* ed. of Lam. v. 533.
Dombeyanus, *Valenc.*
undulatus, *Desh.* (not *Barnes*) ed. of Lam. vi. 533.
multiplicatus, *Desh.* (not *Lea*) ib. vi. 533.
crassus, *Barnes*, Sillim. Journ. vi. 118, 1, 1.
plicata, *Swains.*, Malac. 271, 54, *a.*
Hippopæus, *Lea*, 1845, x. 68, 1, 1.
Sloatianus.
U. Sloatianus, *Lea*, viii. 217, 16, 33, Synopsis, 21.
Chenu, Conchyl. Unio, pl. 32, fig. 7.
U. plectophorus? *Con.*

COMPLANARIA, *Swains.*, *Agas.*

'omp. complanata.
Alas. complanata, *Barnes*, Sillim. Journ. vi. 278, 13, 22.
Hild. ibid. xiv. 289.
Symphynota complanata, *Lea*, iii. 448.
U. complanata, *Desh.* ed. of Lam. vi. 559.
Katherina, *Lea*, Synopsis, 42.
costata.
Alasmidonta costata, *Raf.*, Ann. v. 52, 82, 15, Poulson's Trans. 63.
Alasmodonta rugosa, *Barnes*, Sillim. Journ. vi. 278, 13, 21.
Complanaria rugosa, *Agas.* Stimpson's Shells of New Eng. 14.
compressa.
Symphynota compressa, *Lea*, 1832, iii. 450, 12, 22.
U. compressus, *Con.* Monog. 71, 40, 1.
Dekay, Zool. of New York, 191, 21, 245.
Lea, Synopsis, 19.
Complanaria alasmodontina, *Stimpson*, Shells of New Eng. 14.

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* This species is identical with the *interruptus* of Say and *trapezoides* of Lea. 'he description "antice binis ternisve subsinuosâ," can apply to no other pecies which could be compared with Say's *interruptus*. This description pplies to (*a*) of Lam., which Mr. Lea acknowledges to be his *trapezoides*, nd is the type of *crassidens*. How, then, can he set it aside, and take up *b* s the type of that species, especially as it does not agree with the description?

MARGARITANA, *Schumacker*.

Marg. arcuata.
Alasmodonta arcuata, *Barnes*, Sillim. Journ. vi. 277, 12, 20.
Gould, Invert. of Mass. 114, fig. 75.
Dekay, Zool. of New York, 107, 14, 224.
Margaritana margaritifera, *Lea*, (not *Lin.*) Synopsis, 43.
M. arcuata, *Stimpson*, Shells of New England, 15.
falcata, *Gould*.
monodonta.
Unio monodontus, *Say*, Amer. Conch. pl. 6.
Desh. ed. of Lam. An. sans Vert. vi. 553.
Alas. monodonta, *Fer.* Guerin's Mag. 1835, note 8, 31.
U. Soleniformis, *Lea*, iv. 86, 10, 16, Synopsis, 39.
Chenu, Conchyl. Unio, pl. 14, fig. 4.

ALASMODONTA, *Say*.

arcula, *Lea*, 1838, vi. 71, 22, 69, Synopsis, 42.
confragosa, *Say*. Amer. Conch. pl. 21.
U. confragosa, *Desh.* ed. of Lam. vi. 553.
Marg. confragosa, *Lea*, Synopsis, 42.
marginata, *Say*, Journ. Acad. Nat. Sc. i. 459.
Barnes, Sillim. Journ. vi. 279.
U. varicosa, *Lam.* An. sans. Vert. vi. 78, Desh. ed. 543.
Mya rugulosa, *Wood*, Index, Sup. pl. i, fig. 7.
Margaritana marginata, *Lea*, Synopsis, 42.
Alas. marginata, *Dekay*, Zool. of New York, 196, 14, 226.
truncata, *Say*, MSS. *Gould*, Invert. 117.
Alas. marginata, *Auc.* (Western var.)

LEPTODEA, *Raf.*,

Lept. lata, *Raf.*, Ann. v. 51, 82, 17, Poulson's Trans. 61.
U. dehiscens, *Say*, Disseminator, ii. 308.
Amer. Conch. pl. 24.
Desh. ed. of Lam. 554.
U. oriens, *Lea*, v. 4, 6, 5, Synopsis, 43.
U. dehiscens. *Lea*, Synopsis, 43.
Chenu, Conchyl. Unio, pl. 14, fig. 2.
Anodonta lata, *Fer.* Guerin's Mag. 1835, 25.
U. latus, *Say*, Amer. Conch. Syn. of Unio, No. 44.
leptodon, *Raf.*, Ann. v. Poulson's Trans. 21.
U. leptodon, *Say*, Amer. Conch. Syn. of Unio, No. 6.
Fer. Guerin's Mag. 25.
Con., Monog. 59, 32.
U. planus, *Barnes*, Sillim. Journ. vi. 272.
Anodonta purpurascens, *Swain.*, Zool. Illust. 1st ser. iii. pl. 160.
Symphynota tenuissima, *Lea*, iii. 453, 11, 21.
Unio tenuissima, *Lea*, Synopsis, 38.

STROPHITUS, *Raf.* HEMIODON, *Swains.*

argenteus.
Anod. argentea, *Lea*, 223, 19, 41.
Arkansensis.
Anod. Arkansensis, *Lea*, x. 293, 29, 56.
calceolus.
U. calceola, *Lea*, iii. 265, 3, 1.
Desh. ed. of Lam. An. sans. Vert. 546.
Margaritana calceola, *Lea*, Synopsis, 43.

roph. Curreyanus.
Margaritana Curreyana, *Lea*, viii. 223, 18, 40. Synopsis, 42.
deltoideus.
Marg. deltoidea, *Lea*, vi. 43, 13, 38. Synopsis, 42.
edentulus.
Alas. edentula, *Say*, Disseminator.
Anodonta edentula, *Dekay*, Zool. of New York, 201, 15, 231.
A. edentula, *Lea*, Synopsis, 49.
A. areolata, *Swains.*, Zool. Illust. 2d ser. i. pl. 1.
Etowaensis, *Con.* Proceed. Acad. Nat. Sci. 1849, iv. 154.
fabula.
Marg. fabula, *Lea*, vi. 44, 13, 39. Synopsis, 44.
Hildrethianus.
Marg. Hildrethiana, *Lea*, v. 36, 3, 8. Synopsis, 43.
Holstonia?
Marg. Holstonia, *Lea*, vi. 42, 13, 37. Synopsis, 44.
minor.
Marg. minor, *Lea*, x. 82, 8, 26. Synopsis, 42.
radiatus, *Con.*
Alas. radiata, Sillim. Journ. xxv. 34, 1, 10.
Marg. radiata, *Lea*, Synopsis, 43.
Ravenelianus,
Marg. Ravenelianus, *Lea*, v. 106, 17, 50. Synopsis, 42.
Shæfferiana.
Anod. Shæfferiana, *Lea*, x. pl. 26, fig. 50.
tetragona.
Anod. tetragona, *Lea*, 1846, x. 82, 8, 25.
*unadilla, *Dekay*, Zool. of New York, part i. 199, 15, 228.
undulatus.
Anod. undulata, *Say*, Nicholson's Ency. iv. pl. 3, fig. 6.
Gould, Invert. of Mass. 120.
Anod. rugosa, *Swains.*, Zool. Illust. 1st series, ii. 96.
A. Pennsylvanica, *Lam.* An. sans Vert. vi. 86.
Strophitus undulatus, *Stimp.* Shells of New England, 15.
virgatus, *Con.* Monog. cover of No. 6, June, 1836.
Anod. Wardiana, *Lea*, 1838, vi. 46, 14, 42.

ANODONTA, *Cuvier*, *Lam.*

nod. angulata, *Lea*, vi. 97, 16, 52.
Benedictensis, *Lea*, vi. 104, 16, 48.
Buchanensis, *Lea*, vi. 47, 16, 43.
Californiensis, *Lea*, x. 286, 25, 47.
cataracta, (*a*) *Say*, Nicholson's Encyc. iv. pl. 3, fig. 4.
Lam. An. sans Vert. vi. 85.
A. fluviatilis, *Lea*, vi. 138. Synopsis.
Gould, Invert. of Mass. 117.
Dekay, Zool. of New York, 203, 18, 234.
Kust. Chemn. Unio, 33, 7, 2.
cognata, *Gould.*
Couperiana, *Lea*, viii. 227, 20, 46.
cylindracea, *Lea*, vi. 45, 13, 40.
decora, *Lea*, vi. 64, 20, 63.
declivis, *Con.* Sillim. Journ., July, 1834, xxv. 341, 1, 11.
A. plana, *Lea*, Aug. 1834, v. 48, 7, 18.

Anod. denigrata, *Lea*, 1852, x. 285, 25, 45.
excurvata, *Dekay*, Zool. of New York, 202, 17, 233.
fragilis, *Lam.* An. sans Vert. vi. 85.
ferruginea, *Lea*, viii. 225, 19, 43.
Ferussaciana, v. 45, 6, 15.
Footiana, *Lea*, viii. 226, 20, 44.
gibbosa, *Say*, Long's Ex. to St. Peter's, 1824, ii. 265. *Lea*, Synopsis, 50.
gigantea, *Lea*, vi. 1, 1, 1.
glauca, *Valen. Lea*, Synopsis, 50.
  Delassert, Receuil de Coquilles, pl. 13, fig. 3.
grandis, *Say*, Dissem. 1829, 341.
  Lea, Synopsis, 51.
  corpulenta, *Cooper*, MSS.
Harpenthis, *Lea*, viii. 224, 19, 42.
imbecilis, *Say*, Dissem. 1829.
  incerta, *Lea*, 1834, v. 46, 6, 16.
implicata, *Say*, Dissem. 350.
  Gould, Invert. of Mass. 118, 78.
  A. Newtonensis, *Lea*, vi. 79, 21, 66.
impura, *Say*, Dissem. 1829. *Lea*, Synopsis, 53.
Linneana, *Lea*, x. 289, 27, 51.
lugubris, *Say*, Disseminator, 1829, 340.
Marryattana, *Lea*, viii. 226, 20, 45.
marginata, (*b*) *Say*, Nicholson's Encyclop. iv. pl. 3, fig. 1.
Nuttalliana, *Lea*. vi. 77, 20, 62.
oblita, *Lea*, 1852, x. 290, 28, 52.
opaca, *Lea*, 1852, x. 285, 25, 46.
Oregonensis, *Lea*, vi. 80, 21, 67.
ovata, *Lea*, vi. 2, 2, 2.
pavonia, *Lea*, vi. 78, 21, 45.
Pepiniana, *Lea*, vi. 96, 16, 51.
plicata, *Hald.* Journ. Acad. Nat. Sci. viii. 202.
salmonia, *Lea*, vi. 45, 14, 41.
Stewartiana, *Lea*, v. 46, 6, 17.
suborbiculata, *Say*, Amer. Conch. pl. 11.
subcylindracea, *Lea*, vi. 106, 24, 117.
subvexa, *Con.*, Sillim. Journ. xxv. 341, 1, 12.
teres, *Con.* New Fresh Water Shells, 47, 7, 2.
virens, *Lea*, x. pl. 28, fig. 53.
Wahlamatensis, *Lea*, vi. 68, 20, 64.

NOTES.

(*a.*) *Unio asper.* Ferussac considered this species and Say's apiculatus the same; but there is a strongly marked difference in the arrangement of the tubercles and in the form of the shells posteriorly. (Guerin's Mag. 1835.)

(*b.*) *U. cariosus.* In my Monograph I followed Ferussac in referring *U. luteola*, Lam., to this species, but his description does not apply. It very well describes *U. siliquoideus*, Barnes, in an early stage of growth.

(*e.*) *U. cerinus.* This species cannot be confounded with *flavus;* it has much less prominent beaks, more compressed disks, is proportionally longer, with the hinge and basal margins more nearly parallel, while the color of the epidermis and of nacre are very different. Mr. Lea seems to have hastily made them one species, probably without having time or inclination to compare them.

(*e.*) *U. complanatus*, Soland. There has been some controversy respecting the original name of this species, but it seems clear that Solander had Say's *purpureus* in view when he described his species. He not only remarks that it inhabits rivers in Maryland and New Jersey, but his description, "ovate, compressed, with the front (posterior) margin straight, obliquely truncated towards the cardinal slope, hinge with the primary teeth three-sided and striated," applies very well to a common variety of Say's *purpureus*. If Solander's name had been founded alone on the figure in Lister, t. 150, fig. 5, it could not be retained, because the species intended to be represented by that figure will probably ever be disputed; and it represents *U. niger*, Raf., much better than the shell in question. Lamarck even quotes it for *crassidens*, (Lea's *trapezoides.*) which it certainly does not resemble. The words "admodum crassus," engraved on Lister's plate, prove that it was an exceedingly thick shell, and a Western species.

(*f.*) *U. clava.* Kuster has quoted Rafinesque's figures 23 and 24 for his *gibbosa*, which is a nodulosus species not figured on any of his plates. Those figures represent *U. scalenia.*

(*g.*) *U. nodiferus*, Con. Mr. Lea considers this identical with *prasinus.* Since I have compared several specimens with a fine series of the latter species, I see little resemblance between them. The *nodiferus* is a smaller, more ventricose and inequilateral shell, and the large tubercles grouped together about the middle of the disc, are never seen in *prasinus*. The latter has the slightly prominent tear-shaped tubercles like the young *quadrulus*, very dissimilar in number, shape and prominence to those of the *nodiferus*. Three specimens of the latter, from Alabama, are in the collection of the Academy.

(*h.*) *U. ochraceus*, Say, t. 157, fig. 12, in Lister's Conch., is usually referred to *Anodonta cataracta* of Say, but it much better agrees with the Southern variety of *U. ochraceus.* The color, "subruber," does not agree with any of our *Anodontas*, and, moreover, Lister names it PECTUNCULUS, under which general term he includes *Galathea*, *Paxyodon* and *Cyclas*, which is sufficient evidence that his *Pectunculus fluviatilis* had well defined teeth. The cardinal teeth of the Southern *ochraceus* being distinctly striated, would account for the name of *Pectunculus* being applied to it. Besides, it will be observed that Lister commences the *Anodontas* with the heading of "Section 2d, De musculis cardine lævi," which includes three species. His Section 3d then commences under the heading of "Pectunculus." This is proof positive that his t. 157, fig, 12, is not an Anodonta.

(*i.*) *U. obliquus*, Lam. Mr. Lea has referred Barnes' *undatus* to this species, but Lamarck's description is wholly inapplicable to *undatus*, which is not oblique, and certainly not "ovate-rotundate." The error probably orignated in Barnes' citation of Lamarck's species with a mark of doubt, as synonymous with *undatus.*

(*j.*) *U. plexus*, Con. There is a variety of this species, more elliptical, and with the umbo and upper part of the disc covered with closely-arranged granulations. It is possible that this may prove to be a distinct species. *U. semigranosus*, some conchologists think the same species with *U. plexus*, but it certainly cannot be, if Von dem Busch's species is represented in Phillippi's Conchyl. pl. 1, fig. 1. That is a far larger shell, and of a totally different character.

(*k.*) *U. prasinus*, Con. Mr. Lea observes that Prof. Kirtland thinks this may prove to be a variety of *pustulosus*, (*bullatus*, Raf.) They are, however, very distinct species, the *prasinus* being much longer comparatively, with fewer and less prominent tubercles, and arranged in a very different manner. The cardinal plate under the beaks is not dilated; in the *nodulatus*, it is profoundly dilated, a very important difference, which it is strange should have been overlooked. Young shells of *prasinus* and *bullatus*, when compared, are strikingly dissimilar.

(*l.*) *U. purpuratus*, Lam. There is no doubt that Solander named this species *ventricosa*, as Humphreys terms it "La Ventrue rouge," and gives the habitat of "Mississippi river," where it abounds, and where no other species has been found which agrees with the description.

(*m.*) *U. quadrulus* is not *U. rugosus*, Barnes. Mr. Lea remarks that some of our best Western conchologists think *U. rugosus* identical with *U. fragosus*. Barnes' figure certainly has little resemblance to the latter, and the "*broad* nodulous, somewhat *double* ridge," wholly inapplicable to *quadrulus*. Mr. Lea says, "two specimens referred to by Mr. B. as *rugosus*, were under my inspection, and proved to be, the one a flat *metanever*, and the other a *plicatus*." Now the *rugosus* may be the *metaneurus*, Raf., but Barnes' figure was never intended for any variety of the *U. plicatus*.

Mr. Say has unfortunately copied Barnes' description of *U. rugosus*, and applied it to *U. quadrulus*, Raf.

(*n.*) *U. undatus*. It has been supposed that this was the shell described by Mr. Lea as *trigonus*, but it is distinct. There is a fine specimen of *undatus* in the collection of the Academy, which agrees perfectly with Barnes' figure, and is much more ventricose anteriorly and over the umbo, than *trigonus*; has more elevated beaks, and is very inequilateral, whilst the latter is nearly equilateral. The *undatus* is equally distinct from *cordatus*, Raf., which is comparatively compressed.

Compare Barnes' description, "subtriangular, very tumid, waved," with Lamarck's description of *U. obliqua*, "ovato-rotundate, oblique," and the discrepancy must strike every one; yet both Lea and Deshayes make them one species.

U. undulatus, Barnes. The old specimens of this species have so much resemblance to Say's heros, as even to have deceived Say himself, who abandoned his species, and referred it to Barnes' *undulatus*; but it is a very distinct species, the young shell having little resemblance to that of the latter. There can be no doubt that Barnes figured the species now known as the *costatus* of Raf.

(*o.*) *U. viridis*, Raf. Mr. Lea gives another name to this shell, because he says it is not Rafinesque's species, which it certainly is; yet he does not acknowledge Rafinesque as authority, for he applies his specific names as in the case of *U. interruptus*, to a species of his own; consequently the shell in question should have been quoted by him as *U. viridis*, Con., unless he has one rule applicable to himself and another referable to other authors. The shell labelled *viridis* by Rafinesqe himself, in Mr. Poulson's cabinet, is the same as Lea's *Tappianus*.

ANODONTA.

(*a.*) *A. cataracta*, Say. The *Mytilus fluviatilis* of Gmel. and Dillwyn, and the *M. illitus* of Solander, appear to be merely names given to the *Unio ochraceus* in Lister's work, t. 157, fig. 12. The two *Aaodontas* figured by Lister, t. 154, 155, and having *Virg.* inscribed upon the plates, I cannot refer to any of our species.

(*b.*) *Amarginata*, Say. Dickey regarded this shell as the young of *implicata*, and it is not unlikely his opinion was correct. It certainly is not Say's *cataracta*.

SUPPLEMENTARY NOTES.

U. cuneatus, Raf. Having examined several specimens of this shell it is found to be a form between *U. patulus* and *U. clavus*, and may be a distinct species.

U. fasciolus, Raf. Mr. Poulson's specimen labelled by Rafinesque, is not *U. multiradiatus*, but certainly *U. subangulatus*, Lea.

U. simplex, Lea. It is strange that Mr. Lea should compare this shell with *U. Hydianus*, to which it bears no resemblance, and at the same time overlook *U. Greenii*, Con. His figure might almost answer for a copy of mine.

U. triangularis, Raf. Mr. Poulson's cabinet contains no authentic specimen of this species, which is one I have never identified. *Pachostea*, *Cliffordiana*, and *lateralis* are also uncertain species. *Lampsilis rosea* and *pallida* are probably varieties of *U. ochraceus*.

Table showing the geographical range of the Families UNIONIDÆ, MUTELADÆ *and* MYCETOPODIDÆ, *and some of the genera and sub-genera.*

ASIA.

Family Unionidæ.

Sub-genera.

Naia, *Swains.*
Lanceolaria,[*] *Con.*
Monodontina, *Con.*

Genera.

Barbala, *Rumph.*
Hyriopsis,[†] *Con.*
Nodularia,[‡] *Con.*

EUROPE.

Sub-genera.

Mysca, *Turton,*
Potamida, *Swains.*

AFRICA.

Family Mutelada.

Mutela, *Scopoli.*
Iridella, *Con.*
Pleiodon, *Con.*, *Gray.*
Calliscapha, *Swains.*
Spatha, Lea.

Family Unionidæ.

Sub-genus.

Cœlatura,[§] *Con.*

AUSTRALIA.

Family Unionidæ.

Hyridella, *Swains.*
Parreysia, *Con.*
U. multidentatus, Parreyss.
Cucumaria,[‖] *Con.*

NORTH AMERICA.

Family Unionidæ.

Sub-genera.

Eurinea, *Raf.*, *Agas.*
Lampsilis, *Raf. Agas.*
Canthyria, *Swains.*
Theliderma, *Swains.*
Cunicula, *Swains.*

Genera.

Metaptera, *Raf.*, *Agas.*
Strophitus, *Raf.*
Lastena, *Raf.*
Complanaria, *Swains.*, *Agas.*
Alasmodonta, *Say*, *Agas.*

SOUTH AMERICA.

Family Mutelada.

Genera.

Leila, *Gray.*
Paxyodon, *Schum.*
Prisodon. *ib.*

Sub-genus.

Iridea, *Swains.*

Family Mycetopodidæ.

Mycetopus, *D'Orb.*

Family Unionidæ.

Genera.

Lamproscapha, *Swains.*
Monocondylæa, *D'Orb.*
Byssodonta, *ib.*

Sub-genus.

Corrugaria, *Con.*

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[*] U. Grayanus, *Lea.*
[†] U. Delphinus, *Gruner.*
[‡] U. Douglasiæ, *Gray.*
[§] U. Egyptiacus.
[‖] U. cucumoides, *Lea.*

Sub-genera of Unio.

NODULARIA, *Con.*

Shell nodose; cardinal teeth robust, single in the right valve; in each valve the principal cardinal tooth is parallel with the lateral teeth, or directed towards the posterior extremity of the shell.

Unio Douglasiæ, Gray.

IRIDEA, *Swains.* South America.

Shell with corrugated radiating folds on the beak or umbo; cardinal teeth granulated, generally curved, elongated. Third muscular impression distinct, not confluent, situated under the anterior portion of the cardinal tooth.

Unio granosus, Lam. To this subgenus I would refer *U. solisiana*, D'Orb., *U. Paranensis*, Lea. *U. rhuacoica*, D'Orb., *U. Fontainiana*, D'Orb., *U. hylæa*, D'Orb., *U. Guaraniana*, D'Orb., *U. Matoniana*, D'Orb., *U. Psammoica* D'Orb., *U. charruana*, D'Orb.

This sub-genus is very distinct from any of those existing in North America, nor, indeed, does there appear to be any sub-genus in South America identical with a Northern group.

MYSCA, *Turton.* Europe.

The type of this sub-genus, *U. pictorum*, has the third anterior muscular impression deep, and more distinct from the large one, than occurs in any American species of Unio.

LANCEOLARIA, *Con.* China.

Shell elongated; cardinal teeth widely bifid; third muscular impression situated at the base of the anterior lobe of the cardinal tooth, not confluent, and very profoundly impressed; accessory impression small and confluent with the superior margin of the large impression; pallial impression slightly deflected anteriorly.

U. Grayanus, Lea.

CŒLATURA, *Con.* Africa.

Shell thin, not elongated; beaks corrugated or subnodular; cardinal teeth laminar, greatly elongated, parallel with the anterior hinge margin; anterior accessory muscular impressions confluent with the lower part of the larger one; pallial impression slightly deflected.

U. Ægyptiacus, Caill.

CUNICULA, *Swains.* North America.

Shell compressed, thick, lateral teeth robust and receding from the dorsal margin, posterior accessory muscular impression not confluent, and placed at the extremity of the lateral teeth.

U. fasciolaris, lineolatus, Eastbrookianus, subtentus, cœlatus, arcus, &c.

I have founded this subgenus on other characters than those given by Swainson.

GLEBULA, *Con.* Lousiana.

Shell with the cardinal teeth granulated and profoundly sulcated or divided into 4 or 5 lobes, irregular, diverging, somewhat resembling those of *Pachyodon*; posterior muscular impression very large and confluent with the accessory, which is obsolete.

U. rotundatus, Lam.

UNIOMERUS, *Con.*

Shell elongated, not thick, with parallel dorsal and basal margins; beaks with obliquely concentric plicæ.

U. declivis, camptodon, subcroceus, Sayii, rivularis, porrectus, symmetricus, and excultus.

The members of this group inhabit almost exclusively the small streams and ponds in the Southern States.

THELIDERMA, *Swains.*

This embraces all the tuberculated species, as U. Phillipsea, fragosus, nobilis, quadrulus, apiculatus, &c. The animal appears to agree with that of the mytiloid species, as U. ruber, coccineus, obliquus, cordatus, &c.

LAMPSILIS, *Raf.*

This includes U. ochraceus, ovatus, cardium, capax, dolabræformis, &c.

EURYNIA, *Raf.*

This includes U. nasutus, rectus, productus, Jayensis, lanceolatus, &c.

Proposed New Genera.

CUCUMARIA, *Con.* Australia.

Shell elongated, plicate; cardinal teeth robust, little prominent, obtuse, slightly lobed, transversely sulcated; lateral teeth compressed, not prominent; third anterior muscular impression profound, not confluent, situated immediately under, and near the extremity of the cardinal teeth.

U. cucumoides, Lea.

HYRIOPSIS, *Con.* Asia.

Shell elongated, posteriorly winged: cardinal teeth elongated, very oblique, not prominent, and marked with transverse granulated lines; lateral teeth granulated on the margins; third anterior muscular impression large, not confluent, situated remote from the extremity of the cardinal teeth; anterior accessory muscular impression rather small and more distant from the large impression than in any other sub-genus.

We know only one species, *U. delphinus*, Gruner.

MONODONTINA, *Con.*

Hinge with an obtuse rounded tooth immediately under the beak.

Margaritana Vondembuschiana, Lea. (*M. Buschiana*, Con.)

CORRIGENDA.

U. angustatus, *Lea*, 1832, vi. &c.

U. capax, *Green*, (Symphynota globosa,) *Lea*, 1834, v. 41, &c.

U. capæformis, *Lea*, 1834, v. 31, &c.

U. metanever, *read* U. metaneurus.

The Committee on Major Le Conte's paper on the Vines of North America, reported in favor of publication in the Proceedings.

An enumeration of the Vines of North America.

BY JOHN LE CONTE, F. L. S.

In attempting to give some account of the vines of our country, a very considerable difficulty arises, even at the outset, from the great similarity of the different species. A family resemblance almost amounting to identity runs through the whole of them. Hence, characters which are taken as distinctive, may appear too slight to warrant us in separating as distinct species what at first sight might appear to be mere varieties. But setting aside the shape and appearance of the leaves, the nature of the fruit and method of its growth, in most cases, furnish a good criterion for distinguishing closely allied species from each other, which might in vain be sought for elsewhere.

Some years ago, when there existed a mania for the cultivation of the vine, there was much written about our native grapes, which only tended to involve in obscurity a rather plain and easily developed subject. Men unacquainted with botany, gardeners and others, remarkable only for their ignorance, folly and bad faith, gave names to various kinds of grapes, and frequently made a dozen species out of one. These names, barbarous and unmeaning as they are, were never bestowed on the same variety by any two writers; they saw differences where none existed, and endeavored to account for them by supposing impossibilities. Thus, a variety of V. labrusca, which has been called the Isabella and Catawba grape, and received several other as ridiculous appellations, has been considered as a hybrid between a European and one of our native species. This variety has always been said to have been first found in South Carolina, a country where the V. vinifera had at that time seldom or never been cultivated, and where it by no means flourishes, and where likewise the labrusca is not found. Although among some families of plants hybrids occur naturally or may be formed artificially, yet it is difficult to understand how this ever can be the case in the genus Vitis. In forming a hybrid, it is necessary to emasculate the flower which we wish to produce fruit, and to impregnate its pistil with the pollen of some other species; this is impossible in the present instance, on account of the minuteness of the flower and the parts of fructification. If the hybrid be supposed to be formed naturally, how could the anther dust of a cultivated plant be carried in a sufficient quantity from a garden to produce any effect in the thick woods of the Southern States?

Botanists have hitherto been able to detect but few species of Vitis in the United States. Michaux, Elliot and others, reckon but four or five in the whole extent of our country. Rafinesque, by believing in the various follies of the day, and led aside by writings which fell into his hands and by the false statements which he collected from different quarters, made forty-one species of this genus, the most of which he had never seen. Although able to investigate and describe as well as any naturalist of his day, he was led astray by an insatiable desire of making new species, and appropriating to himself every thing that he saw or even heard of in Natural Science, he gave names to many things which never existed, and furnished accounts of them as if he had had them in his possession. Although his lucubrations are little worthy of notice, I have endeavored to identify as many of these numerous species as possible, and to reduce them to some degree of certainty; guided as well by what I remember to have seen in his possession, as by the short, and, in many instances, very imperfect descriptions found in his American Manual of Grape Vines; some I have not been able to determine, but scarcely think them different from others already well known. The number of species now recognized in systematic works is not more than five or six. I have increased this number considerably; with what propriety is for others to judge.

In my wanderings through our country, I have, I think, seen two more species, but have no memoranda of their characteristics which allow me to say more than that one was observed in the middle regions of Georgia, which bore grapes of a tolerably large size, in clusters of such density that the berries were pressed into a cubic form. The other was a small grape, of which the inhabitants of the upper part of North Carolina made a considerable quantity of pale red wine. This may be the V. cordifolia of Michaux, which species I have not been able to determine. The description of the last species, V. palmata, is taken in a great measure from recollection, and not from a late examination.

By the word racemus or raceme, I wish to be always understood to mean the bunches of mature fruit, the true and legitimate meaning of the Latin word.

1. **VITIS LABRUSCA.** Foliis lato-cordatis, sublobato-angulatis, aut quinquelobatis acuminatis, irregulariter eroso-dentatis, supra glabris, subtus irregulariter reticulatis, dense tomentosis aut velutinis, pube incana aut rufescente, baccis magnis rotundis aut ovalibus.

Hab—In the Northern and Middle States. V. sylvestris, occidentalis, et vulpina, Bartram, in New York Medical Repository, Hexade II. vol. I. V. latifolia, canina, luteola, rugosa, ferruginea, labruscoides, blanda, prolifera and obovata, Rafinesque's American Manual of Grape Vines. Vulg. Fox grape, Isabella and Catawba grape.

Stem large and tall. Leaves widely cordate, sublobately-angled or distinctly three or five-lobed; acuminate, irregularly eroso-dentate, above smooth, beneath irregularly reticulate, beneath densely tomentose or velvety; the pubescence of various length, hoary or rufescent. Berries large, ·7 of an inch in diameter, round or oval.

The commonest form of this species has thick leaves, with a rather long pubescence beneath; the racemes are small, rarely with more than five or six berries on each; these are round, often oblate, black or red colored, acid and austere, frequently occasioning soreness of the lips and fauces of those who eat them. Another variety much cultivated under the names of Isabella, Catawba, and twenty other unmeaning names, has the leaves thinner, the pubescence underneath much shorter and more velvety, the racemes large, long and dense. the berries more or less oval, red or black, very sweet and agreeable to the taste, with a peculiar flavor, by some called musky. This is much cultivated in some parts of the Union, and wine of a fine quality is made from it. But like all the grapes of America the fruit is so watery that it is thought necessary to add sugar to the must, not considering that the must before fermentation can be made of any strength with regard to the sugar contained in it, by boiling, as is done in some parts of the country, with apple and pear juice.

The best of all the varieties of this species is the white-fruited, which does not differ in its leaf from that first described; the racemes are, however, large, long and dense, the berries white or green with a slight coppery tinge on the side exposed to the sun. It is, perhaps, the best grape indigenous to America which has been found in the Northern States. It is very sweet, and has but little of the peculiar flavor which almost all the others have, and is entirely free from all acridity.

2. V. TENUIFOLIA. Foliis tenuibus, lato-cordatis simplicibus, trilobis aut quinquelobis acuminatis irregulariter dentatis, glabris interdum subtus arachnoideo-villosis, nervis rufo-pubescentibus. Racemis parvis, baccis magnis, rotundis, viridibus paulo glaucescentibus, ingratis acidis.

Hab.—In New Jersey, formerly very common in the vicinity of Trenton, but now not to be found.

Stem tolerably large and tall; leaves thin, widely cordate, simple or three or five-lobed; acuminate, irregularly dentate, smooth, sometimes arachnoideo-villous beneath; the nerves and veins always furnished with a rufous pubescence. Racemes small, berries large, ·8 of an inch in diameter, green, a little glaucous, disagreeably acid.

3. V. ÆSTIVALIS. Foliis lato-cordatis sublobato-angulatis, tri vel quinquelobis, acuminatis irregulariter serratis aut dentatis, dentibus mucronatis, supra glabris aut paulo arachnoideis, subtus arachnoideo-villosis plus minus fuscis, interdum subglabris, junioribus densius villosis. Racemis parvis, baccis parvulis nigris acidis.

Hab.—In Carolina and Georgia. V. æstivalis, Michaux and Rafinesque. V. labrusca, Walter and Elliot. Vulg. Fox grape.

Stem large and lofty; leaves widely cordate, sublobately angled, sometimes distinctly and deeply three and five-lobed; acuminate irregularly dentate or serrate, with the teeth mucronate, above smooth or a little arachnoidal, especially in the younger state, beneath more or less fuscous, arachnoideo-villous sometimes subglabrous, the youngest one more densely villous. Racemes rather small; berries rather small, ·4 of an inch in diameter, black, generally very acid.

These three species have a general resemblance to each other, but as appears from the description, are sufficiently distinct.

4. V. BRACTEATA. Foliis cordatis, acuminatis, quinquelobis, si profundis, irregulariter dentatis dentibus acutis muticis, supra glab nervis rufo-pubescentibus. Florum fasciculis bracteatis. Racemis lo positis laxis, baccis parvis nigris.

Hab.—In Carolina and Georgia in swamps. V. bracteata, Raf. V. æstivalis, Elliot. Vulg. Duck shot or Swamp grape.

Stem very large, climbing to the tops of the loftiest trees; leaves broad-cordate, acuminate, five-lobed, sinuses wide and deep, the lobes irregularly dentate; the teeth without any mucronate point, above smooth, beneath with the nerves rufo-pubescent. Fascicles of the flowers with a short leaf or bract at the base of each; racemes long, loose, and compound; berries very small, ·15 of an inch in diameter, very acid.

5. V. VULPINA. Foliis glabris, cordatis acuminatis, simplicibus, trilobis aut interdum profunde quinquelobis, dentatis, dentibus subabrupte-acuminatis, subtus plus minus sparse villosinsculis aut etiam glabris. Racemis densis baccis parvis.

Hab.—In the Northern and Middle States. V. vulpina, Willd. V. æstivalis, Emerson's Report on the Trees, &c., of Massachusetts. V. cordifolia of many authors, but not of Michaux. V. callosa, hyemalis, cordifolia, Raf. Vulg. Winter grape.

Stem moderately large, very branching, the younger shoots for the most part purplish. Leaves always smooth above, and generally so on both sides; beneath sometimes, particularly in the younger ones, a little villous; cordate acuminate dentate, the teeth abruptly acuminate, always more or less tri-lobate, sometimes profoundly so, and often five-lobed. Racemes tolerably large, very dense, so as even to change the form of the berries; berries ·25 of an inch in diameter, black, acid.

The name of cordifolia is occasionally given improperly to another species, the V. rotundifolia Mx. Willdenow's description is not very full, but sufficiently so to remove all doubt of his meaning this species; there is no other so well deserving the name of Vulpina, as the grapes have a strong smell much resembling that of a fox.

The older leaves are without any villosity beneath except on the nerves, which with the veins are very prominent. They frequently become glaucous beneath.

6. V. ARANEOSUS. Foliis lato-cordatis, sublobato-angulatis, integris, trilobis aut quinquelobis, lobis acuminatis, dentatis, dentibus submucronatis, supra glabris, subtus arachnoideo-villosis, villositate plus minus ferruginea. Racemis subdensis, baccis maioribus nigris.

Hab.—In the upper parts of Georgia. Vulg. Fox grape.

Stem moderately large and high. Leaves broad, cordate, sublobately angled, entire and three or five-lobed, acuminate dentate; the teeth submucronate, above glabrous, beneath arachnoideo-villous, more or less ferruginous; in the older leaves this villosity forms into small tufts or knots, and in the very oldest almost entirely vanishes, although in the youngest it is very thick and close. Racemes dense; berries of a middling size, ·5 of an inch in diameter, black, often very sweet and agreeable. The leaves are sometimes 8 inches long and as many wide.

This species is well worth cultivating.

7. V. BICOLOR. Foliis lato-cordatis sublobato-angulatis acuminatis subintegris et tri aut quinquelobis irregulariter dentatis, dentibus acuminatis aut mucronatis supra glabris subtus pallidioribus, in junioribus sparse arachnoideo-villosis. Racemis laxis, baccis parvis nigris.

Hab.—From Pennsylvania to Virginia. V. æstivalis Darlington, Florula Cestrica.

Stem moderately large and high. Leaves broad-cordate, sublobately angled acuminate, subentire, and three or five-lobed, irregularly dentate; the teeth acuminate or mucronate, above smooth; beneath paler in the younger leaves, sparsely arachnoideo-villous, the villosity entirely vanishing with age. Racemes long, loose and compound; berries small, black, ·3 of an inch in diameter, sweet and agreeable.

. V. PULLARIA. Foliis glabris, ovatis cordatis acuminatis, ut plurimum
sus apicem obscure aut profunde trilobatis rarius quinque lobatis sæpe inte-
, inæqualiter gross dentatis, dentibus acuminatis. Racemis longis ramosis
is.
Hab.—In Virginia and Maryland. Vulg. Chicken grape.
tem moderately large and tall. Leaves thin, smooth on both sides, polished,
te cordate, abruptly acuminate, beyond the middle more or less tri-lobed,
etimes five-lobed, often entire, unequally dentate ; teeth large, acuminate ;
ioles and nerves beneath conspicuously pubescent. Racemes long, compound
loose ; berries small, ·3 of an inch in diameter.

. V. RIPARIA. Foliis glabris ovatis cordatis acuminatis ante medium plus
us trilobis, sæpe integris dentatis, dentibus latis depressis, brevi-mucronatis.
emis laxis baccis parvis.
ab.—In Georgia and Mississippi on the banks of rivers in overflowed places.
riparia Mx. V. dimidiata Rafinesque.
tem large and tall. Leaves thin, smooth on both sides, polished ovate, cor-
e, acuminate, more or less tri-lobed beyond the middle, often entire, sub-
nato-dentate ; teeth broad, flat, with a short point ; the youngest leaves with
ight arachnoid pubescence beneath, petioles, nerves and margin pubescent.
leaves are sometimes five-lobed, the upper lobes with deep spathuliform
ses, the margin but little dentate. Racemes loose ; berries small, ·3 of an
h in diameter, black and acid.
his species, confounded by most authors with the next (if it has ever been
n by them,) is found only in the southernmost States on the margins of
ers, in places frequently subject to inundation, whence its name among the
abitants of the banks of the Mississippi, *Vinge de battures;* it very much re-
ables the next, but is easily distinguished by its thinner leaves and the
chnoid pubescence on the under side of them in their younger state.

0. V. ODORATISSIMA. Foliis glabris ovatis cordatis acuminatis inæqualiter
nato-dentatis dentibus mucronatis, ut plurimum versus apicem obscure
obis. Racemis laxis, baccis parvis.
Hab. In the Northern States, in dry situations, generally on the sides of rocky
ls. V. odoratissima Donn. V. riparia Pursh, Torrey and Gray, &c. V.
otina Bartram, l. c. seems to be V. cordifolia of Emerson, &c. V. montana,
color, columbina, populifolia, odoratissima and amara Rafinesque.
tem large and high. Leaves smooth on both sides, broad-ovate, cordate,
uminate, unequally crenato-dentate, teeth mucronate ; generally obscurely
obate beyond the middle, nerves beneath very prominent, margin, nerves
neath and petioles pubescent ; a small pubescent tuft on the axillæ of the
rves of the under side of the leaves. Racemes long and loose, berries small,
of an inch in diameter, black, very acid and austere, ripening in November.
This species is much cultivated in gardens on account of its fragrant flowers,
perfume of which is exactly that of Reseda odorata. It very rarely pro-
ces fruit. I have found fertile individuals only on the rocky hills north of
boken, New Jersey. I have been informed that the Indians formerly used
juice of this grape for dyeing blue.

1. V. ROTUNDIFOLIA. Foliis glabris nitidus rotundo-cordatis, acuminatis
nquam lobatis grosse dentatis, dentibus, acutis subæqualibus, racemis, parvis
cis magnis nigris, rubescentibus vel albis.
ab. From Virginia to Florida. V. rotundifolia Mx. V. vulpina Walter.
acerifolia, vulpina, angulata, and veruccosa Rafinesque. Vulgo, Bullace
pe, from its resemblance to the bullace or wild plum of Europe, corrupted
o Bull grape. In Virginia and North Carolina, it is called Muscadine and
ppernon grape.
tem moderately large, unlike every other species perfectly smooth even in
oldest vines. Leaves thin, smooth on both sides, polished, shining, most so
neath, round cordate, never lobed, acuminate dentate ; teeth large, subequal
ate, axillæ of the nerves beneath sometimes furnished with a small tuft of

pubescence. Racemes small, simple; berries large, ·2 of an inch in diameter, round, black, reddish or white.

This vine most frequently produces fruit of a delicious flavor and very sweet. In North Carolina much wine is made from the grapes, but generally it is spoilt by mixing it with peach brandy or whiskey to increase its strength. Among the ignorant it is commonly thought that no fermented juice of fruit can be kept for any length of time, unless it is adulterated with alcoholic spirit.

In the pine forests of Georgia the V. rotundifolia is found prostrate, with stems scarcely three feet long.

12. V. PALMATA. Foliis ovato-cordatis utrinque glabris, profunde quinque lobatis palmatis, laciniis sublanceolatis, inæqualiter lateque crenatis val incisis. Racemis subdensis subsimplicibus baccis magnis albis gena cuprea.

Hab. In North Carolina and on the banks of the Ohio. V. palmata Vahl. V. virginiana Poiret.

This grape, which is the true Bland's grape of former years, was once (30 years ago,) extensively cultivated in the gardens of this city, but has since been utterly lost. I cannot now find a single plant of it. It was perfectly hardy, bore profusely and ripened before the frosts.

The above description is made from memory assisted by Vahl's and Poiret's description. I have seen it growing wild in the mountains of North Carolina and have been informed that it was once common on the banks of the Ohio river. There is certainly no grape found in America that can be compared with it; in every respect it is equal to any variety of the V. vinifera, being very sweet and perfectly free from pulp, and without that peculiar flavor which is more or less common to all other American species.

The V. cordifolia Mx. I have never met with, at least a species corresponding with his description has never fallen in my way either in the North or South. It is said to extend from Pennsylvania to Florida. There is another small and sweet grape called the Orwigsburg which I have omitted, although said to be native; I could never satisfy myself that it was so. It has much the appearance of foreign varieties.

Of the foregoing species, those most worthy of cultivation are of No. 1, the white variety, and the Isabella or Catawba, which would probably flourish in the coldest parts of Europe; No. 6 and No. 11 and No. 12, all of which are sweet and agreeable and furnish good wine.

The Committee on Dr. Le Conte's "Synopsis of the N. American Silphales," and "Synopsis of the Scaphidilia of the United States," reported in favor of publication in the Proceedings.

Synopsis of the SILPHALES *of America, North of Mexico.*

By JOHN L. LE CONTE, M. D.

In the following synopsis, I have included also the Coleoptera which form Erichson's family Anisotomini, as the characters of that group appear to be by no means sufficient to entitle it to rank as a distinct family. Schiodte has already* made similar remarks, detailing at the same time, strong reasons in support of his opinion.

The genus Silpha presents among its species peculiarities which would furnish abundant material for reflection to the philosophic naturalist; the species found in this country, differ among themselves, by such variations of structure that each becomes the type of a separate group. Several authors have already designated many of these groups by generic names, yet the differences between them appear in value so much less than those which distinguish the genera.

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* Specimen Faunæ Subterraneæ; translated in the Transactions of the Entomological Society of London, New Series, vol. 1, p. 134, et seq.

which have an appearance of being truly natural, that I have not considered it prudent to adopt their views.

Among some of these groups, (e. g. S. lapponica, S. americana and S. ramosa,) appear several forms, which are undeniably distinct in their origin and distribution and yet do not present characters sufficiently definite for their perfect separation. Many genera among more highly organized animals presenting this same peculiar specific relation will occur to the mind of every naturalist, but this is, I believe, the first example distinctly noticed among Articulata; nor can I find in scientific memoirs any allusion to a doctrine, which flows very naturally from such observations, viz: There are in nature genera so constituted that their division can naturally be made only so as to exhibit assemblages of individuals, which are multiple and distinct in their origin, but which are so closely related that any attempt to define and isolate them must result in confusion. The interpretation of so called geographical varieties, is obviously a portion of this doctrine; but for the present, I must merely content myself with this brief notice of a view, which, whether it be eventually proved correct or erroneous, might ere this have exerted a beneficial influence upon certain portions of Natural History, where the zeal for creating irrecognizable species has been pushed to prodigious extent.

Div. 1. *Silphales genuini.*

Trochanteres postici fulcrantes; coxæ posticæ approximatæ.[*]

NECROPHORUS *Fabr.*

A. Thorace convexo, tenuiter marginato, antice non impresso.

1. **N. mediatus**, niger, thorace obovato, antice dense punctulato, lateribus et basi punctato, elytris macula humerali altera transversa ante medium, tertiaque lunata versus apicem rubris; antennarum clava ferruginea; pectore abdominisque basi ad latera auropilosis. Long. ·87—·95.

Fabricius, Syst. El. 1, 334: Latreille, Gen. Ins. 2, 5.

Southern States, Missouri Territory and Texas. This very distinct species differs from all the succeeding ones by the epipleuræ being narrower, less inflexed, and less distinctly margined above. The posterior tibiæ are very much dilated at their extremity. In the male, the anterior tarsi are only moderately dilated, and the yellow hair at the base of the abdomen is more abundant. In both sexes the rhinarium is triangular.

Among the specimens from Nebraska are varieties in which the anterior transverse spot is divided; in some the outer part of this divided spot is effaced: in such individuals the posterior lunate spot is much reduced in size.

B. Thorace antice transversim impresso, margine laterali anguste depresso.

2. **N. marginatus**, niger, thorace obovato, marginibus parce punctulatis, lateribus vix sinuatis, elytris lateribus, fascia communi ante medium, alteraque utrinque subapicali rubris; antennarum clava ferruginea; pectore aurapiloso. Long. ·[illegible]—·88.

Fabricius, Syst. El. 1, 334.

New York, Georgia, Texas, Nebraska and California. The rhinarium is red and triangular the posterior fascia does not entirely reach the suture, and its outer portion is contiguous to the apical margin. The anterior band is sometimes interrupted towards the side, and sometimes one of its posterior dentations is prolonged so as to reach the inner part of the posterior band. The anus and margins of the abdominal segments are ciliate with black hairs. The anterior tarsi of the male are moderately dilated.

3. **N. Melsheimeri**, niger, thorace obovato, lateribus subsinuatis marginibus punctatis, epipleuris elytrorumque faciis utrinque duabus dentatis rubris: antennarum clava ferruginea, basi nigra, pectore anoque flavo-pilosis. Long. ·92.

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[*] This last is a character found in the whole group; it is merely added here for the convenience of those who may desire to consider Scydmænidæ as a division of this, and not a distinct family.

? Kirby, Fauna Bor. Am. 97.

One female from Nebraska and another from Utah. Very similar in appearance to the preceding, but the anterior band does not reach the suture, and the posterior band is less close to the apex; the rhinarium in both specimens is black and triangular.

Kirby describes his species as having a red trapezoidal rhinarium, but as I find great difference in this respect between individuals of other species, I am not inclined to consider this character as of any importance. Kirby's descriptions are moreover very faulty and difficult to use, as he has laid undue stress on variable or on universal characters, while the differences in form of the thorax and the extent of its depressed portion are hardly mentioned.

The description of N. obscurus Kirby (l. c. 97,) also applies to this species, except that the epipleuræ are not "narrower than usual;" that character would assimilate it with my division (A), but from the want of a description of the thorax, it is impossible to place it accurately.

4. N. guttula, punctulato, lateribus sinuato, dorso subtiliter canalicul li rufa; antennarum clava obscure ferruginea, basi nig bdomine nigro-pubescente. Long. ·48—·70.

Motschulsky, Bull. Mosc. 1

California, abundant at S San Francisco; also found at Sitka, according to Motschulsky, re, however, by no means accurate. The transverse impression ry deep; the elytral spot is entirely on the base of the epipleuræ, nes very indistinct. The anterior tarsi of the male are dilated, a im is black and trapezoidal; in the female the rhinarium is much iangular; the anus of both sexes is ciliate with yellow hairs.

C. Thorace subcanaliculato, anti versim impresso, margine laterali latius depresso.

a. abro.

5. N. americanus, niger, acis disco, epipleuris elytrorumque fasciis utrinque duabus rubris, n clava ferruginea, pectore flavo-piloso. Long. 1·00—1·35.

Nicrophorus americanus Oliv. Ins. 10, 6; pl. 1, 3, (1790); Enc. Meth. 8, 154.

Necrophorus grandis Fabr. Ent. Syst. 1, 247, (1792); Syst. El. 1, 334; Herbst. Kafer, 5, 152, tab. 50, 1.

Middle and Southern States, abundant. Fabricius quotes Olivier, but for some unknown reason does not adopt his specific name.

The rhinarium in this species is red, and very variable in form; sometimes it is small and triangular, sometimes very large and trapezoidal. This difference at first appeared to be sexual, but with a larger series of specimens I found that both forms were to be found among the males; although the variation is very great, yet after a diligent comparison, nothing was found to indicate specific difference.

6. N. pustulatus. niger, thorace subovali, subtransverso, marginibus punctatis, elytris distinctus punctatis, gutta laterali ad medium, alterisque utrinque duabus versus apicem saturate rubris; antennarum clava ferruginea, basi picea, pectore flavo-piloso, abdomine griseo-pubescente. Long. ·62—·85.

Herschel, Illiger's Magazin, 6, 271, (note.)

N. bicolon Newman, Ent. Mag. 5, 385.

Middle, Southern and Western States, not common. The rhinarium is red, triangular and moderately large; the anterior tarsi of the male are strongly dilated. I have one specimen in which the lateral elytral spot is hardly distinct, and the two apical spots entirely wanting.

7. N. nigrita, niger, thorace ovali, lateribus subsinuatis, marginibus punctatis, elytris subtilius punctatis, punctis maioribus 3-seriatis impressis; antennarum clava ferruginea basi nigra, pectore nigro-piloso. Long. ·75.

Mannerheim, Bull. Mosc., 184, p. 251.

California, at San Francisco and San Diego; only two males secured. The impressions of the thorax are very deep, the transverse undulated line is not interrupted at the middle; the rhinarium is red and trapezoidal; the anterior tarsi are strongly dilated.

8. N. pygmæus, niger, thorace ovali, lateribus vix sinuatis, parce punctulato, marginibus punctatis, elytris distinctius punctatis, fascia utrinque dentata in epipleuras extensa, maculaque postica dentata rubris, pectore anoque flavo-villosis antennarum clava nigra. Long ·4—·6.

Kirby, Fauna Bor. Am. 98, tab. 2. fig. 3.

New York and Lake Superior. I have only males of this species; of three from Lake Superior, the smallest has the rhinarium large, trapezoidal and black; in the other two no rhinarium is visible. The impressions of the thorax are very deep, the longitudinal line is more distinct than usual; the red band of the elytra, although reaching the lower margin of the epipleura, is not dilated there.

The specimen from New York differs from the other three in having the elytra more finely punctured, and the red bands much more bright colored; the rhinarium is large and trapezoidal, as in the first mentioned specimen.

I formerly considered the large specimens as F. hebes Kirby, (l. c. 96.,) which by description seems closely allied, but is placed in a different division of the genus, with the "prothorax dilated anteriorly."

9. N. lunatus, niger, thorace subovali, latitudine vix breviore, marginibus punctatis, elytris subtilius punctatis punctisque maioribus 3-seriatim impressis, epipleuris, fascia utrinque angusta dentata, maculaque lunata postica rubris; antennarum clava ferruginea basi nigra, pectore flavo-piloso, abdomine nigro-ciliato, ano flave-pubescente. Long. ·75—·79.

New York and Georgia. This species is named in Dejean's Catalogue, but I cannot fine that any description has yet been published. The posterior tibiæ are curved. The rhinarium is red and trapezoidal in two specimens; in another it is scarcely to be seen.

10. N. orbicollis, niger thorace rotundato, marginibus punctatis, elytris distinctius punctatis, parcius pilosis, utrinque fascia dentata maculaque postica lunata rubris, antennarum clava ferruginea basi nigra, pectore flavo-villoso, abdomine nigro ciliato, ano griseo-pubescente. Long. ·73—·90.

Say, Journ. Acad. Nat. Sc. 5, 177.

N. Hallii Kirby, Fauna Bor. Am. 98.

Middle and Southern States, abundant. The rhinarium is short, triangular and reddish; the punctures of the elytra are furnished with tolerably long erect yellowish hairs; the tibiæ are nearly straight; the posterior ones of the male are gradually broadly dilated towards the tip.

One male from the Sault de Sainte Marie, Michigan, differs in having glabrous elytra, and much more dilated posterior tibiæ; the rhinarium in it is piceous, broad and trapezoidal. The hairs of the elytra may have been removed by accident, and the other characters seem scarcely sufficient for the definition of a new species.

b. Thorace villoso.

12. N. velutinus, niger, thorace, pectore, epipleurisque basi flavo-villosis, illo ovali subtransverso, lateribus sinuatis, elytris distinctius punctatis, fasciis utrinque duabus dentatis rubris, epipleuris flavis. Long. ·53—·85.

Fabricius, Syst. El. 2, 234, (1801); Kirby, Fauna Bor. Am. 96.

N. tomentosus Weber, Observ. 47, (1801.)

Common throughout the Atlantic States and Missouri Territory. The anterior tarsi of the males are strongly dilated; the rhinarium is red, sometimes large and trapezoidal, sometimes small and triangular; the latter form occurs in both sexes; the former I have observed only in males. The club of the antennæ is black.

As the two names applied to this species appear to be equal in date, I have followed other authors in adopting that of Fabricius, as his work is of a more systematic nature, and much more easily accessible.

The following species are unknown to me:

N. **obscurus** Kirby, Fauna Bor. Am. 97.

N. **hebes** Kirby, Fauna Bor. Am. 96. Nova Scotia.

N. **maritimus** Man. Bull. Mosc. 1843, 251; Chevrolat, Guérin's Icon. Regne An. 60, pl. 17, fig. 8; Sitka.

N. auripilosus‡ Esch. (teste Motschulsky, ibid. 1815, part i. p. 52.)

N. **defodiens** Man. Bull. Mosc. 1846, 13; Sitka and Unalaschka.

In Illiger's Magazin (6, 271 note,) Herschel mentions N. **carolinus** Linn., but after a very careful search, I cannot find any such species in Linnæus' works, nor is it mentioned by any other auther.

SILPHA *Linn.*

The following arrangement of the species is the most natural that I have been able to form; it must be remembered at the same time, that the intermediate coxæ in all our species are moderately distant:

A. Antennæ articulis tribus ultimis longioribus.

a. Antennæ laxe articulatæ; oculi prominuli.

1. S. **surinamensis** Fabr. Ent. Syst. 1, 248; Syst. El. 1, 336; Linn Syst. Nat. (ed. Gm.) 4, 1620: ibid. (ed. Turton,) 2, 99; Olivier, 11, tab. 2, fig. 11, Herbst, Käfer, 5, 173.

Necrodes surinamensis Latr. Gen. Crust. et Ins. 1, 498.

Common in the Middle, Southern and Western States. Varies in having a small lateral spot at the middle of the elytra, and sometimes a small discoidal one between the 2d and 3d costa. The posterior thighs of the male are very much incrassated, and armed beneath with a sharp tooth; the posterior tibiæ are also much curved, and dilated internally towards the apex into an obtuse angle.

I have excluded the synonym of Kirby, (Fauna Bor. Am. 99,) because the males of his Nova Scotia species are stated to have the posterior thighs very slightly enlarged. This needs confirmation by a re-examination of the original specimens now in the British Museum.

b. Antennæ minus laxe articulatæ.

α. Thorace subinæquali pilso; antennæ articulo 3io longiore.

2. S. **lapponica** Herbst, Käfer, 5, 209, pl. 52, fig. 4.

S. caudata Say, Journ. Acad. Nat. Sc. 3, 192.

S. tuberculata Germar, Ins. Nov. 81.

S. californica Mannerheim, Bull. Mosc. 1843, 253.

Oiceoptoma (*Thanatophilus*) *lapponicum* Kirby, Fauna Bor. Am. 100.

Oiceoptoma granigera Chevrolat, Col. Mex. fasc. Ima.

Found in every part of the northern portion of the continent, not extending south of Albany (New York) in the Atlantic States, but in the central region extending into New Mexico, and even into Mexico; found also in Oregon and at San Diego in Southern California.

I have only referred to the original description of Herbst, leaving out all the rest of the European synonymy, as it should have no place in a local fauna.

The elytra of the males vary slightly in form, being sometimes truncate, and sometimes slightly sinuate; those of the female are more deeply sinuate at the extremity, and are more or less prolonged at the suture; the anterior tarsi are slightly dilated in the males.

The differences upon which are founded the various synonyms above quoted, are entirely individual: they are all found intermixed together wherever the species occurs.

β. Thorace glabro; antennæ art. 2 et 3 subæqualibus.

* Thorace æquali, elytris truncatis.

3. S. **truncata** Say, Journ. Acad. Nat. Sc. 3, 193.

Forks of Nebraska River.

** Thorace inæquali, elytris integris.

4. S. **margninalis** Fabr. Ent. Syst. Mantissa, 215; Syst. El. 1, 338;

Herbst, Käfer, 5, 180; Oliv. Ins. 11, tab. 1, fig. 5; Linn. Syst. Nat. (ed. Gmel.) 4, 1621; ibid. (ed. Turton) 2, 100.

S. noveboracensis Forster, Cent. Ins. 17.

Oiceoptoma (*Thanatophilus*) *marginatum* Kirby, Fauna Bor. Am. 109.

Southern and Middle States; according to Kirby found at lat. 54°. Kirby observes that in this case, at least, it would be very inexpedient to restore the older name, and this view I trust every entomologist will adopt.

5. S. inæqualis Fabr. Ent. Syst. 1, 251: Syst. El. 1, 340; Olivier, 11, tab. 2, fig. 20; Herbst, Käfer, 5, 185, tab. 41, fig. 2; Linn. Syst. Nat. (ed. Gmel.) 4, 1620; ibid. (ed. Turton, 2, 100.

Oiceoptoma (*Thanatophilus*) *inæquale* Kirby, Fauna Bor. Am. 182.

Common through all the Atlantic district.

B. Antennæ articulo ultimo solo longiore, tribus præcedentibus æqualibus; articulo 2do 3io longiore.

a. Antennæ breves, crassiusculæ.

6. S. peltata *Lec.*

Scaralæus peltatus Catesby, Carol. 3, tab. 10, fig. 7, (1731.)

Silpha Americana Linn. Syst. Nat. (ed. 12); 2, 570, (ed. Gmel.) 4, 1619. (ed. Turton) 2, 99; Fabr. Ent. Syst. 1, 249; Syst. El. 1, 337; Olivier, 11, tab. 1, fig. 9; Herbst, Käfer, 5, 176.

Blatta Americana Catesby, Linn. et auct. al.

Oiceoptoma (*Necrophila*) *Americanum* Kirby, Fauna Bor. Am. 102.

O. (*N.*) *terminatum* Kirby, ibid. 103.

O. (*N*) *affine* Kirby, ibid. 103.

O. (*N.*) *Canadense* Kirby, ibid. 104.

Northern, Middle and Southern States; the differences between Kirby's species appear to be partly individual and partly sexual; specimens presenting the characters of all his species occur together.

There is, however, a particular form which appears to be confined to the Southern States, which perhaps is sufficiently distinct to rank as a species; from the proportions of Catesby's figure, it is probably his typical insect; in which case the name *Americana* may be retained for the ordinary form, by those who wish to consider them as distinct.

The variety in question is larger and much broader than those found at the North; the sides of the thorax are less rounded, and the surface more densely and coarsely punctured. The suture of the female is armed with a more distinct spine: the horizontal portion of the epipleuræ is broader and not so much deflexed.

In regard to the change of name proposed above, I will merely observe that Catesby appears to have been the first describer of this species, and that his specific name has fallen into disuse, on account of the error committed by Linnæus in quoting Catesby's work; as this error has remained uncorrected so long, we are at liberty to infer that subsequent authors have merely quoted Linnæus, without verifying his assertion.

Although by the change here proposed a well known name is sacrificed to one completely unknown, it seems to me that there could be no good reason for refusing to replace the earlier name, which has been lost, not by forgetfulness nor by ignorance, but simply by a perpetuated misquotation.

b. Antennæ elongatæ, tenues, sensim paulo incrassatæ.

7. S. ramosa Say, Journ. Acad. Nat. Sc. 3, 193.

S. cervaria Mannerheim. Bull. Mosc. 1843, 252.

Wisconsin, Minnesota, Missouri Territory, New Mexico, Oregon and California. In this widely distributed species, I have been able to distinguish three forms, which though differing by more decided characters than are usually to be found in varieties, can scarcely be considered in the light of ordinary species.

a. The color is dull black; the thorax is very much narrowed in front, and more strongly rounded on the sides than in the others; the margin of the elytra is broader and less reflexed; in the male, the elytra are broadly rounded posteriorly; in the female they are prolonged and obliquely narrowed, so that the body appears somewhat ovate. Of this form I have one female, from Fort Snelling, (Minnesota) and another from Wisconsin; one male from Nebraska and one from Oregon.

β. Of this form I have only a single female specimen from California; the body is elliptical, narrower than (α), the thorax not so short; the margin of the elytra broad and strongly reflexed, the apex obliquely narrowed as in the preceding, but not longer than the abdomen; the slight tubercle on each elytron behind the middle is more apparent. Color greenish black.

γ. Color greenish black. Form regularly elliptical, narrower than the males referred to (α); thorax not so short, less narrowed in front; elytra broadly rounded behind in both sexes, margin narrower than in the others, and strongly reflexed. Very abundant in California.

Besides these, I have two specimens which cannot be classed with any of the above, and perhaps indicate other forms, which, however, cannot at present be distinctly separated.

The first is from Nebraska. It is a dull black male, having the thorax less narrowed in front than (α), and the margin of the elytra narrower, as in (γ), but less reflexed. The proportions of the body are in the male of (α).

The second was found at San Diego, with (γ); it is a greenish black female of more dilated form, having the proportions of the male of (α), and having the elytra broadly rounded, as in (γ), the margin, however, appears less strongly reflexed than in that form; the tubercle of the elytra behind the middle, is more obvious than in (α) or (γ).

These forms appear to be subject also to considerable variation in the sculpture of the elytra; the punctures between the branching elevated lines are sometimes very distinct, and sometimes almost obsolete.

The following is unknown to me:

Oiceoptoma (*Thanatophilus*) trituberculatum Kirby, Fauna Bor. Am. 101.

Found in lat. 54°. With this is probably identical the '*Silpha opaca Auct.*' of White, in Richardson's Arctic Expedition (p. 474). Whether Kirby's insect is in reality distinct from the European S. opaca Linn., or is related to it as the forms of S. ramosa are to each other, must be left for future investigation.

Necrophilus *Latr.*

1. N. hydrophiloides Man. Bull. Mosc. 1843, 253; Chevrolat, Guérin's Icon. Regne An. 61, pl. 17, fig. 12.

San Francisco, in decomposing human excrements. Nothing in Mannerheim's description, or Chevrolat's figure and description, indicates any difference between Sitka specimens and those found by me, although a direct comparison ought to be made in order to establish their identity.

Motschulsky, (Bull. Mosc. 1845, p. 363,) states that what is considered as a black variety of this species, is distinct, and thereupon names it N. ater; with his accustomed haste, he leaves the distinctive characters to be determined by any individual who is so lucky as to possess such rarities; as few have had access to species from Russian America, an expression of opinion upon this matter might be dangerous; for those, however, who would prefer adopting the belief that there is but one species, until a second is demonstrated, I may mention that the species found by me varies from piceous to black, and that there is no other difference between differently colored individuals.

Catops *Fabr.*

A. Thorax angulis posticis obtusis.

1. C. opacus, ater, punctulatus, subtiliter pubescens, thorace semi-elliptico, basi late rotundato, elytris obsolete striatis, tibiis calcaribus magnis armatis. Long. ·23.

Say, Journ. Acad. Nat. Sci. 5, 184.

New York and Ohio, rare. The male has three joints of the anterior tarsi strongly dilated; the middle tarsi are not dilated. The sutural stria of the elytra is deeper than the others.

2. C. **simplex**, piceus, fulvo-sericeus, dense punctulatus, thorace antrorsum subangustato, lateribus rotundatis, basi late rotundato, elytris obsoletissime striatis, stria suturali profundiore, antennis basi testaceis; tibiis calcaribus mediocribus armatis. Long. ·14.

?Say, Journ. Acad. Nat. Sci. 5, 184.

New York. I am not positively certain that this is Say's species, which was found in Arkansas. The thorax is more narrowed in front than described by him; although the legs are in reality black, the lustre of the fulvous hair is such, that one might readily be tempted to describe them as testaceous at base.

The anterior tarsi and first joint of the middle tarsi of the male are moderately dilated; the antennæ are as long as the head and thorax, moderately thickened, the 7th joint is a little larger than the 6th and equal to the 9th; the 8th is about one-half smaller.

3. C. **clavicornis**, oblongo-ovatus, ater, subtiliter pubescens, dense punctulatus, thorace antrorsum valde angustato, lateribus rotundatis, basi late rotundato, elytris versus apicem obsolete striatis, stria suturali profundæ, antennis thorace brevioribus magis clavatis. Long. ·11.

One female, New York. This species is readily distinguished from the preceding by the shorter, more clavate antennæ, which are only indistinctly testaceous at base; the 7th joint is about twice as large as the 6th; the 8th is smaller than the 6th, and appears only about one-third as large as its neighbors. The spurs of the tibæ are somewhat smaller than in the preceding species.

B. Thorax angulis posticis rectis vel acutis.

4. C. **californicus**, oblongus, subovalis, piceus, sericeus, subtillissime, punctulatus et transversim strigosus, antennarum basi, pedibus, elytrisque pallidoribus, his stria suturali profunda, thorace antrorsum valde angustato, angulus posticis paulo productis. Long. ·12.

Abundant at San Jose and San Diego, California. The antennæ are slightly clavate, and as long as the head and thorax. The thorax is strongly narrowed in front, truncate at base, and slightly sinuate near the posterior angles, which are subacute; the sides are broadly rounded; the disc is sometimes blackish, and the sides dark rufous. The punctures of the upper surface in this species are very indistinct, and the transverse striæ very fine; the pubescence is sericeous, but not dense. The anterior tarsi of the male are strongly dilated, the intermediate pair simple, the posterior pair longer than the tibæ.

One female from San Diego appears more elongated than the others, and much more narrowed posteriorly; I cannot, however, find any other difference.

5. C. **strigosus**, oblongo-ovalis, subelongatus, piceo-rufus, sericeus, distinctius strigosus, thorace latitudine sesqui breviore, antrorsum modice angustato, angulis posticis vix productis, elytris stria suturali profunda, antennis magis incrassatis piceis basi testaceis. Long. ·11.

One female, South Carolina, Dr. Zimmerman. This species resembles the preceding, but the thorax is less narrowed in front, and less rounded on the sides; the transverse lines on the thorax and elytra are more distinct; the punctures are very indistinct; the first four or five joints of the antennæ are testaceous, the rest are piceous, the apex is indistinctly paler.

6. C. **consobrinus**, oblongo-ovalis, subelongatus, ater subsericeus, vix punctulatus, subtiliter transversim strigosus, antennis basi rufo-piceis, elytris stria suturali profunda, thorace antrorsum modice angustato, angulis posticis leviter productis. Long. ·12.

Georgia. This species resembles the two preceding, but is a little more elongated, and more oval; it is entirely black, excepting the base of the antennæ and the tarsi, which are rufo-piceous. The thorax is more than one-half wider than long, moderately narrowed in front, broadly truncate at apex, very slightly rounded on the sides, truncate at base and faintly sinuate at the posterior angles, which are slightly acute. The punctures are very indistinct, the transverse scratches are as fine as in C. californicus.

7. C. terminans, oblongo-ovalis, minus convexus, nigro-piceus, subtiliter pubescens, elytris distinctius rugose punctulatis, stria suturali profunda, thorace breviore, antrorsum valde angustato, angulis posticis vix productis; pedibus fuscis, antennis apice flavis, basi testaceis. Long. ·12.

Le Conte, Agassiz' Lake Superior, 218.

Very abundant at the mouth of the Pic River, on the north side of Lake Superior, under dried animal matter. This species is broader and less convex than the preceding, and is easily known by the more distinct punctuation, and by the absence of the transverse lines. The thorax is densely and finely punctulate, it is about twice as wide as its length, strongly narrowed in front, rounded on the sides, especially anteriorly, slightly emarginate at apex, truncate at base, and very slightly sinuate at the posterior angles, which are scarcely perceptibly acute. The anterior tarsi of the male, and the first joint of the middle tarsi, are dilated.

By a misprint, the length in the description cited from Agassiz' Lake Superior, is made ·15 instead of ·12.

8. C. oblitus, subellipticus minus convexus, rufo-fuscus, pubescens, thorace punctulato antrorsum subangustato, basi truncato, angulis posticis fere obtusis, elytris transversim minus dense strigosis, stria suturali distincta, antennis flavis art. 4—10 fuscis. Long. ·07—·08.

Three specimens, Georgia. Easily distinguished by its sub-elliptical and less convex form. I cannot discover any punctures on the elytra; if they exist, they are concealed by the dense pubescence, which is, however, scarcely sericeous. The male has three joints of the anterior tarsi dilated; the middle tarsi are simple in both sexes.

9. C. parasitus, breviter ovatus, piceo-rufus, sericeus, thorace disco obscuriore, brevi, antrorsum valde angustato, angulis posticis non productis, elytris transversim strigosis, stria suturali profunda, antennis basi apiceque flavis. Long. ·08.

New York, in ants' nests, with Hetærius brunnipennis, March and April. This species is much broader and more suddenly narrowed posteriorly than the others. The thorax is fully twice as wide as its length, punctulate, not strigose, strongly narrowed in front, broadly rounded on the sides, truncate at base, with the posterior angles simply rectangular and not produced. The elytra are punctulate and distinctly striate transversely. The antennæ are as long as the head and thorax, very slightly incrassated, rufo-piceous, with the first 4 joints and the apical one yellowish; the 7th joint is more than twice the size of the 6th; the 8th joint is much shorter, but scarcely thinner than the following ones. The anterior tarsi of the male are broadly dilated; the first joint of the middle tarsi is less dilated than in C. terminans.

The following species are unknown to me:

C. basillaris Say, Journ. Acad. Nat. Sci. 3, 194, Missouri.

C. cadaverinus Man. Bull. Mosc. 1843, 254. Sitka.

Choleva (*Catops*) Spenciana Kirby, Fauna Bor. Am. 108.

COLON *Herbst.*

Mylœchus Latr.

C. dentatus, fuscus, oblongus, fulvo-sericeus, valde punctulatus, thorace latitudine vix breviore, antrorsum magis angustato, angulis posticis vix rotundatis, elytris stria suturali postice profundiore, antennarum clava magna picea, pedibus rufo-piceis, femoribus posticis dente acuto armatis. Long. ·09.

This, the first species of the genus found on this continent, was discovered by the Rev. D. Ziegler, at York, Pennsylvania. The characters above given will at once distinguish it from any European species. The thorax is scarcely wider than long, strongly narrowed in front, broadly rounded on the sides, truncate at base, and not sinuate at the posterior angles, which are rectangular and very slightly rounded; the punctures are dense, very distinct. The elytra are distinctly punctured; the sutural stria may be traced to the base, but is deeper behind the middle; there are traces of other striæ near the apex. The posterior thighs are compressed, and at the middle of the inferior margin are armed with a small sharp tooth.

Div. 2. *Anisotomini.*

Trochanteres postici simplices; coxæ posticæ approximatæ.

This division is considered by Erichson as a distinct family, which he divides into two groups: Anisotomini, with strongly spinous tibiæ, and Agathidiini, with the tibiæ slightly spinous, or merely pubescent. This arrangement does not appear altogether natural, as some of the species of Liodes have the spines of the tibiæ very distinct, while others have the same organs nearly smooth. Possibly a more natural division might be into three groups, thus:

A. Clypeus parvus capite connatus, vel vix distinctus; caput subtus non insculptum.

B. Clypeus valde distinctus; caput subtus non insculptum.

C. Clypeus nullus; caput subtus sulcis profundis insculptum.

The first group corresponds to Erichson's Anisotomini: the second contains Liodes, and probably Amphicyllis: the third contains Agathidium only. The first division is said by Erichson (Ins. Deutschl. 44) to be almost peculiar to Europe: it will be seen, however, that it is quite respectably represented in this country.

ANISOTOMA *Illiger.*

1. A. alternata, oblonga, ferruginea, nitida, thorace subtiliter punctato, elytris striis punctatis, interstitiis subtilissime punctulatis, alternatim pluripunctatis. Long. ·18.

Leiodes alternata Mels., Proc. Acad. Nat. Sc., 2, 103.

One male from Alabama, Haldeman: Dr. Melsheimer's specimen was found in Pennsylvania. The anterior tibiæ are gradually and slightly dilated: the posterior tibiæ are elongated, curved inwards, and slightly thickened at the tip.

2. A. assimilis, ovalis nigro-picea, thorace subtiliter punctato, lateribus rotundatis, basi late rotundata utrinque punctis maioribus marginata, elytris subtiliter punctato-striatis, interstitiis obsolete punctulatis, alternatim pleuripunctatis. Long. ·16.

Le Conte, Agassiz' Lake Superior, 221.

One male, Eagle Harbor, Lake Superior. The anterior tibiæ are slightly dilated, the posterior ones elongated and curved inwards.

3. A. indistincta, rotundata, convexa, piceo-rufa, thorace obsolete punctulato lateribus minus rotundatis, basi vix sinuata, utrinque punctis paucis marginata, elytris minus subtiliter punctato-striatis, interstitiis subtiliter parce punctulatis, alternatim 3 vel 4 punctatis. Long. ·11.

Le Conte, Agassiz' Lake Superior, 221.

? *Leiodes puncto-striatus* Kirby, Fauna Bor. Am. 110.

One specimen, found on the north shore of Lake Superior. The anterior tibiæ are as in the preceding, the posterior ones are straight and not longer than the others. Kirby says that the interstices of the elytra are smooth, and they really appear so, except under a powerful lens: a new examination of Kirby's type must, however, be made before they can be considered as identical.

4. A. collaris, ovalis, convexa, rufo testacea, antennarum clava, capite thoraceque piceis, hoc sat dense punctato, lateribus valde rotundatis, rufescentibus, basi truncata, utrinque punctis magnis marginata, elytris profundius punctato-striatis, interstitiis subtilissime parce punctulatis, alternatim 5 vel 6 punctatis. Long. ·12.

Le Conte, Agassiz' Lake Superior, 221.

One male, Eagle Harbor, with the posterior tibiæ slightly curved.

5. A. **strigata**, rotundata, convexa, ferruginea, thorace lateribus rotundato basi truncato, vix obsoletissime punctulato, elytris seriatim punctatis, interstitiis parce transversim strigosis, et subtillisime punctulatis. Long. ·08.

Le Conte, Agassiz' Lake Superior, 221.

One specimen from Eagle Harbor. This species is remarkable for the sculpture of the elytra; the punctures of the interstitial spaces are almost invisible, and are usually placed in the transverse scratches; the sutural stria is deeply impressed posteriorly. By its sculpture this species is nearly related to A. **hybrida** Er., (Ins. Deutschl. 75) but that is an elongated species with a distinctly punctured thorax.

6. A. **obsoleta**, rotundata, convexa, rufa, thorace lateribus rotundatis, basi truncata vix sinuata, subtilissime parce punctulato, elytris subtiliter punctato-striatis, interstitiis obsoletissime punctulatis, 3io parce punctato. Long. ·075.

Pallodes obsoletus Mels., Proc. Acad. Nat. Sci., 2, 107.

Pennsylvania: for a typical specimen I am indebted to Dr. Melsheimer. His description differs somewhat from the one here given, as the power of the lens used by him was not sufficient to enable the specific characters to be clearly percived.

CYRTUSA *Er.*

1. C. **egena**, sub[illegible]da, parce subtilissime punctulata, elytris subtiliter stria[illegible]osticis valde dilatatis. Long. ·05.

Two specimens fron [illegible], Georgia. This species agrees in every particular with [illegible] latipes Er., (Deutsch. Ins. 80) except that the thorax is more [illegible]unctured at the sides; the sutural stria is impressed from the [illegible]e elytra to the tip. The posterior femora of the male are armed [illegible] the extremity, with a very large, slightly recurved tooth, as in C[illegible].

The insect described by me in [illegible]z' Lake Superior, as **Cyrtusa globosa**, on more close examina[illegible]ves to belong to Liodes.

C[illegible] *Er.*

1. C. **impunctata**, subglobosa, testacea, nitida, thorace lævissimo, elytris impunctatis, transversim obsoletissime strigosis, stria suturali pone medium distincta. Long. ·03—05.

Two specimens, found in Pennsylvania, were given me by Mr. Ziegler, a much smaller one was found by me in upper Georgia; as the posterior thighs are alike in all, they are probably females. This species will be easily distinguished from the European C. **dentipes** Er., (Deutschl. Ins. 83) by the thorax being smooth and shining, even when viewed with a Stanhope lens, and by the entire absence of punctures on the elytra.

The genus will be easily distinguished by the seventh joint of the antennæ being but little larger than the 8th, so that the club appears 3-jointed, the third joint is as long as the second; the middle and posterior tarsi are 4-jointed.

2. C? **lævis**, globosa, nigra, nitida lævis, thorace margine omni diaphano, elytris stria suturali nulla, ore antennarum basi corporeque subtus rufis, metasterno medio nigro. Long. 04.

Georgia. I considered this little insect as a non-globatile Agathidium, but on relaxing a specimen and examining the antennæ it appears to belong to this genus; the club of the antennæ is, however, more slender than in the preceding, so that the seventh joint really appears to enter into the club. The third to the sixth joints are equal in length. The anterior margin of the front is broadly rounded, as in the preceding genus. The mesosternum is strongly carinate. I cannot be absolutely certain that the posterior tarsi are not 3-jointed, in which case it would be necessary to place it in Agaricophagus; the tibiæ are apparently without spines.

The head is fully one-half as wide as the base of the thorax, and black, with the mouth yellowish. The thorax is very short, deeply emarginate in front, sligbtly rounded on the sides, broadly rounded at the base; the sides and basal margin are diaphanous and yellowish. The elytra are entirely without striæ or punctures, their tip is rufescent. The under side of the body and the feet are rufous; the metasternum has a large central black spot.

It is very probable that the relation between the second joint of the antennæ and the following ones should be considered as a generic character, and the absence of all sculpture on the upper surface would seem to indicate a genus distinct both from Colenis and Agaricophagus. Until more specimens occur, so that a dissection can be made, it would be better to allow the species to rest in the present genus.

LEIODES *Latr.* (emend. Schmidt.)

1. L. globosa, hemispherica, nigro-picea, nitida, thorace subtilissime punctulato, lateribus rotundatis, diaphanis, elytris punctulatis, punctis vix maioribus seriatim positis, stria suturali postice profunda, antennarum basi tibiis tarsisque piceis. Long. ·13.

Cyrtusa globosa Le Conte, Agassiz' Lake Superior, 222.

Sault St. Marie, Michigan, under bark.

2. L. polita, hemispherica, nigra nitida, thorace impunctato, lateribus rotundato, elytris subtiliter punctato-striatis, interstitiis alternatim obsolete parce-punctatis, abdomine, ore antennarum basi pedibusque piceo-rufis. Long. ·11.

One specimen, South Carolina, Dr. Zimmerman. Still more globose than the preceding. The anterior tarsi are not dilated; the sutural stria as in all is deeply impressed posteriorly.

3. L. discolor, hemispherica, nigra, nitida, thorace impunctato, lateribus rotundatis, diaphanis, elytris profundius punctato-striatis, interstitiis alternatim parce punctatis, antennarum basi pedibusque piceo-rufis. Long. ·11.

Melsheimer, Proc. Acad. Nat. Sc. 2, 103.

One specimen, Pennsylvania, Dr. Melsheimer. This species resembled very much the preceding, but the rows of punctures on the elytra are larger; the interstitial punctures are very distinct, and the abdomen is brown only at the sides. The head appears reddish in some lights; the first joint of the anterior tarsi is slightly dilated. This species seems subject to variation in color, Dr. Melsheimer's specimen is described as being 'rufo-testaceous beneath.'

4. L. basalis, rotundata, convexa, nigra, nitida, thorace versus latera vix punctulato, elytris basi rufis, parce punctulatis, punctis maioribus confusis striatis, interstitiis alternatim 6- vel 7-punctatis, abdomine antennarumque basi rufo-piceis. Long. ·10.

Pennsylvania, Dr. Melsheimer; New Jersey, Mr. Guex. The red color of the base of the elytra extends from the epipleuræ almost to the suture, its outline is quite distinctly defined.

5. L. dichroa, rotundato-ovalis, convexa nigra, nitida, ore antennarum basi pedibus anticis, ventre elytrisque testaceis. his punctis confusis striatis, interstitiis vix subtilissime punctulatis, alternatim 6- vel 7-punctatis, sutura margineque nigricante; thorace lævigato. Long. ·09—·10.

One pair, Ann Arbor, Michigan; the anterior tarsi of the female are 5-jointed.

AGATHIDIUM *Illiger.*

A. Corpus globatile; humeri rotundati.

1. A. oniscoides, piceum, valde convexum, nitidum læve, elytris stria suturali nulla, antennis pedibusque rufo-testaceis. Long. ·13.

Beauvois, Ins. d'Afrique et d'Am. 160, pl. 6, fig. 2.

A. piceum Melsheimer, Proc. Acad. Nat. Sc., 2, 103, (1844.)

Pennsylvania, Dr. Melsheimer. The margins of the thorax are frequently rufescent. There is an A. piceum described by Erichson in 1845, the name of which may be changed by any one who does not wish to adopt the synonymy of this species as given above.

2. A. exiguum, nigro-piceum, valde convexum, nitidum, thorace lævi, limbo diaphano, elytris obsolete parce punctulatis, stria suturali antice obsoleta, postice profunda; antennis pedibusque rufis. Long. ·95—·08.

Melsheimer, Proc. Acad. Nat. Sc., 2, 103.

A. ruficorne Le Conte, Agassiz' Lake Superior, 222.

Found from Lake Superior to Louisiana. The tip of the elytra sometimes becomes rufescent; the abdomen is usually ferruginous, but is sometimes dark colored; I can find no difference between large and small individuals sufficient to warrant their separation; by actual measurement, however, Dr. Melsheimer's type is two-thirds of a line long instead of one-third as stated by him.

3. A. revolvens, piceum, nitidum, modice convexum, elytris subtiliter punctatis, obsolete striatis, stria suturali postice profunda. Long. ·14.

Le Conte, Agassiz' Lake Superior, 222.

One specimen from the north shore of Lake Superior. This species has the power of contracting itself into a ball as perfectly as the preceding, and the lateral outline of the elytra is precisely similar; it is very distinct by its less convex form, and distinctly punctured elytra.

B. Corpus subglobatile; humeri obtusi.

4. A. pulchrum, nigrum nitidum, valde convexum, capite macula frontali rufa, thorace lævi margine omni flavo, elytris subtilissime punctulatis, maculis utrinque duabus magnis obliquis flavis, antennarum basi pedibusque rufis. Long. ·09.

San Jose, California, under oak bark. The elytra are finely punctulate; the sutural stria is deep and does not extend before the middle; the anterior spot commences at the humerus, and becoming narrower, runs obliquely backwards, nearly reaching the suture about the middle; the second spot commences below the humerus, and forms a broad vitta parallel with the margin, and not reaching the suture; the thorax is sometimes black margined with yellow, sometimes yellow with a round discoidal black spot; the club of the antennæ is piceous, becoming rufous at its extremity.

The left mandible of the male is armed with a long curved horn.

5. A difforme, piceum, nitidum, convexum, thorace vix subtilissime punctulato, lateribus rufescente, elytris distincte punctatis, stria suturali antice abbreviata. Long. ·08.

Phalacrus difformis Le Conte, Agassiz' Lake Superior, 222.

Two males from the north side of Lake Superior. The left mandible is armed with a long curved horn. The head is distinctly punctured; the base of the antennæ, and the anterior feet are rufo-piceous; the margins of the elytra are rufescent.

I have nothing to say in extenuation of my error in placing this species in the genus Phalacrus, the form of the anterior coxæ, and the filiform tarsi, if looked at, would have taught me better.

The genus Sternuchus Lec., (Agass. Lake Sup. 222) must be suppressed, as, on careful examination, I find the club of the antennæ to be two-jointed; the part described by me as the antennæ of Sternuchus, appears to be an accidentally adhering fragment of another insect. There, therefore, remains no character to separate Sternuchus from Clambus, and the typical species must be called Clambus gibbulus; it is the analogue of the European C. armadillo; a slightly pubescent species found in Pennsylvania was given me by Mr. Ziegler. The genus Clambus, from the appearance of the under surface, may probably enter the family Trichopterygia, but as yet its place seems uncertain.

As an appendix to the present family, it may be proper to describe an insect which is placed in many American cabinets under the name 'Sphærites americanus.' It is, however, by no means a Sphærites, nor does it belong to the present family, but from its transverse anterior coxæ, entire prosternum, &c., &c., must be placed in the family Nitidulariæ, where it forms a new genus.

PSILOPYGA *Lec.*

Sulci antennales recti divergentes; labrum bilobum; mandibulæ dilatatæ, apice inflexa, acuminata, utrinque serrulata; palpi breves articulis ultimis ovalibus; mentum parvum breve subpentagonum; tibiæ compressæ modice dilatatæ; tarsi anteriores dilatati, postici simplices; pygidium nudum.

The form of the body is very similar to that of Hister; it is glabrous, elliptical, and moderately convex; the elytra are truncate, so as to expose the last dorsal segment; the male has an additional small anal segment. The anterior tibiæ are more dilated than the others; their outer margin is finely serrulate, and the outer angle somewhat produced; the terminal spurs are unequal, the larger ones slightly bent; the prosternum is dilated and rounded posteriorly; the middle coxæ are distant. The first ventral segment is larger than the others.

By this detail of the characters, this genus will appear obviously different from any described by Erichson in his systematic arrangement of Nitidulariæ, (Germar's Zeitschr. 4, 267 et seq.); it seems to approach most closely Ischæna, (p. 287,) and Ipidia (p. 289.)

P. **histrina**, elliptica, modice convexa, nigro-picea, nitida, capite thoraceque parce punctulatis, punctis majoribus intermixtis, elytris striis 9 punctatis impressis, interstitiis parce subtilissime punctulatis, pygidio punctato. Long. ·21.

Pennsylvania, in fungi, Dr. Melsheimer and Mr. Ziegler. The thorax is narrowed in front, emarginate at the apex, and the anterior angles not rounded; the sides are broadly rounded, finely and strongly margined; the base is broadly rounded, with a broad, short and truncate lobe in front of the scutel; the latter is large, triangular and sparsely punctured. The striæ of the elytra are entire, and the 9th is slightly sinuous; the apex is truncate, and has a few confused punctures at the termination of the striæ; the punctures of the pygidium are moderately large and shallow. The under surface is punctured; the epipleuræ are concave and punctured. The base of the antennæ is feebly rufo-piceous.

[*Note*. The manuscript of the "Synopsis of Scaphidilia" by Dr. Le Conte, having been mislaid, its publication must be deferred.]

The Committee on the following paper by Dr. Le Conte, reported in favor of publication in the Proceedings.

Synopsis of the species of the Histeroid genus ABRÆUS (Leach,) *inhabiting the United States, with descriptions of two nearly allied new genera.*

BY JOHN L. LE CONTE, M. D.

The number of species of Abræus found within our territory, renders the genus quite worthy of a special notice; as they are all very small and uniform in appearance, they present at first a moderate degree of difficulty in determining their characters. This difficulty, however, vanishes under a closer inspection, which shows the species to be as well defined as in other genera of the same family. For the more complete illustration of the genus, I have added descriptions of two species from Cuba; these being foreign to our present limits, are not numbered in the following list.

Two species, which I considered as belonging to this genus, on close examination present characters altogether different. I have accordingly constructed a new genus for them, which must be placed in a different division of the family, near Dendrophilus. To avoid confusion, however, as the species will undoubtedly be mistaken by others for Abræus, I have thought it better to append the generic and specific description to the present essay.

Erichson has divided the six species known to him into two groups. The first contains globular species, with very short estriate prosternum, with no lateral stria on the elytra, and with the pygidium inflexed, so as to form part of the ventral surface of the abdomen. Of this group there is but one species known to me in this country.

The second group has the prosternum bistriate, the elytra with a lateral stria and the pygidium perpendicular. The species are numerous and vary in form from almost globular to tolerably strongly depressed.

A synoptic table may be thus constructed:

A. Corpus globosum, pygidio inflexo. ABRÆUS.

1. rufus, elytris valde aciculatis, linea basali hamata insculptis punctiformis.

B. Pygidium perpendiculariter deflexum. ACRITUS.

a. Thorax basi marginatus.

* Pygidium læve, (corpore rotundato.)

1. minus convexus, niger, elytris subtilius punctulatis et aciculatis, ... discus.
2. valde convexus, niger, elytris punctatis, postice subtiliter aciculatis, ... fimetarius.
3. valde convexus, piceus, elytris subtilius punctatis, postice densius aciculatis, ... strigosus.
4. rufo-piceus, elytris punctatis, et aciculatis, lateribus lævibus, postpectore punctato, ... conformis.

(Corpore subovali.)

5. rufo-piceus, elytris subtilius punctatis et aciculatis, lateribus lævibus, postpectore lævi, ... simplex.

** Pygidium punctulatum, (corpore subovali.)

6. piceus parcius punctulatus, elytris lateribus, lævibus, stria laterali subtili . . . . basalis.

(nigro-piceus, punctulatis, elytris lateribus lævibus, stria laterali profunda . . . . analis.)

b. Thorax basi non marginatus.

7. ovalis, rufo-piceus, impunctatus, ... politus.
8. oblongus, subdepressus niger, pu s, pygidio lævi, . maritimus.
9. oblongus, subdepressus, niger, gr , punctatus, pygidio punctulato . . . . exiguus.

(rotundatus, subdepressus, rufus, aciculatus, pygidio vix punctulato . . . . atomus.)

ABRÆUS *Leach.*

1. A. punctiformis, subglobosus, rufus, thorace punctato, elytris valde aciculatis, linea basali hamata notatis, pygidio inflexo, punctato. Long. ·02.

Common in the Southern States, under pine bark. I have adopted the name under which it has been sent me by Dr. Zimmerman. Body subglobose, very little longer than wide, rufous, somewhat shining; head and thorax finely punctured, the latter not margined at the base. Elytra strongly aciculate, marked on each side with a basal curved line, of a parabolic form; the outer leg of this curve may be traced quite to the apex, forming a fine marginal line; the epipleuræ and under surface of the body are very coarsely punctured. Pygidium strongly inflexed, punctured. Anterior tibiæ strongly dilated.

The prosternum is punctured, slightly emarginate behind, and not striate.

ACRITUS *Lec.*

Prosternum utrinque truncatum, bistriatum; mandibulæ retractæ; scrobiculi antennales maximi profundi, in thoracis parte inflexa antice siti; antennæ funiculo tenui, capitulo ovali; maxillæ mala interiore unco apicali armata; tarsi postici quadriarticulati; pygidium perpendiculare.

Although by Erichson considered as a portion of Abræus, I have ventured to separate these species as a distinct genus, since the characters already pointed out by Redtenbacher (Fauna Austr. 240) in the form of the posterior tarsi and the inner lobe of the maxillæ seem to indicate the necessity of removing these species from Abræus.

In the form of the antennæ and the cavities for their reception, this genus agrees perfectly with Abræus; the prosternum is, however, less flat, and is truncate posteriorly as well as in front; it is marked with a distinct stria on each side. The elytra are destitute of a marginal stria; the epipleuræ have a single entire lateral stria, and occasionally a rudiment of a second at the base. The pygidium is perpendicular, not inflexed, as in Abræus. The anterior tibiæ are more or less dilated, but always gradually so. The middle and posterior tibiæ are slender. The posterior tarsi are only four-jointed, the portion usually composing the basal joint being firmly anchylosed to the second joint.

To this genus will also belong Hister minutus *Fabr.*, and Hister nigricornis *Ent. Heft.*, both placed in Abræus by Erichson.

1. A. discus, rotundatus, minus convexus, nigro-piceus, thorace subtilissime, elytris subtiliter sat dense punctatis, illo basi marginato, pygidio lævi. Long. ·04.

Two specimens found in upper Georgia, under bark. Body round, less convex than usual, piceous black, shining. Head very obsoletely punctulate. Thorax extremely finely punctulate, with a distinct transverse line at the middle of the base. Elytra finely and tolerably densely punctured, very slightly aciculate; epipleuræ broad, finely punctulate, lateral stria deep. Pygidium impunctured: under surface finely punctured; legs rufous, anterior tibiæ gradually very slightly dilated.

2. A. fimetarius, rotundatus, convexus, piceus vel niger, thorace punctulato. basi medio marginato, elytris minus subtiliter punctatis postice subtiliter aciculatis, pygidio impunctato, alutaceo. Long. ·04.

Abræus fimetarius Lec., Bost. Journ. Nat. Hist. 5, 54.

A pretty large species, found in the Southern and Middle States, in dung and under stones. Head very finely punctulate. Thorax not densely, very finely punctured, with a traverse marginal line at the middle of the base. Elytra not densely, somewhat coarsely punctured, punctures becoming small posteriorly and intermixed with dense fine scratches; towards the base there are usually one or two oblique abbreviated striæ visible, which, however, are sometimes entirely obsolete; epipleuræ inferiorly smooth, lateral stria deep. Pygidium impunctured, slightly chagrined. Under surface sparsely punctured; anterior tibiæ scarcely dilated.

A specimen found by Dr. Schaum at New Orleans, has the basal elytral striæ very deep, and between them about the middle, is a shorter, also oblique stria. I can find no other difference between it and the others.

From the difficulty of perceiving the characters of such minute species, the descriptions of my father are by no means as accurate in this genus as in the others contained in his Monograph. Under this species he says that the thorax is not margined posteriorly, but has a row of larger punctures. Now in all the species which have the posterior line discernible, it is formed by the limit of a series of basal punctures or aciculations, and is not an engraved distinctly defined line.

3. A. strigosus, rotundatus, convexus, vix ovalis, piceus, thorace densius punctulato, basi medio marginato, elytris confertim punctatis postice subtiliter dense aciculatis, pygidio impunctato. Long. ·03.

Two specimens from Georgia. This species resembles very much A. fimetarius, but is smaller, and the punctures of the thorax are denser and more distinct; the punctures of the elytra are smaller. Body rounded, convex, scarcely oval, shining piceous. Thorax densely, distinctly punctulate, strongly margined at the middle of the base. Elytra moderately punctured, punctures becoming small posteriorly, where they are mingled with fine dense scratches; epipleuræ almost smooth, lateral stria deep. Pygidium impunctured, obsoletely chagrined. Postpectus and abdomen sparsely punctured, anterior tibiæ very slightly dilated.

4. A. conformis, rotundatus, convexus, vix ovalis, piceus vel rufo-piceus, thorace subtiliter punctulato, basi medio marginato, elytris punctatis postice subrugosis, lateribus lævibus stria laterali profunda, pygidio impunctato. Long. ·023.

Georgia, under bark. Similar in form to A. fimetarius but only half as large, and a little less globose; varies in color from piceous to brownish-red. Thorax very finely punctured; middle of the base distinctly margined. Elytra more finely not densely punctured, punctures posteriorly smaller and mixed with scratches; the sides and epipleuræ are smooth, the lateral stria deep. Pygidium impunctured; postpectus sparsely distinctly punctured; anterior tibiæ slightly dilated.

5. A. **simplex**, oblongo-ovalis, convexus, rufus vel rufo-piceus, thorace subtiliter punctulato, basi medio marginato, elytris subtilius punctatis et postice rugosis, lateribus lævibus, stria laterali, subtili, pygidio impunctato. Long. ·025.

Abræus simplex Lec., Bost. Journ. Nat. Hist. 5, 54, tab. 10, fig. 11.

Abundant in Georgia, under bark. This species is more oval than A. conformis, which it resembles very closely, so that the upper surface presents hardly any difference; the punctures of the elytra are, however, finer, and the posterior rugæ more numerous. The lateral stria is very fine. The postpectus is smooth; with a very powerful lens. and in a particular light, may be seen a few very minute indistinct pun rior tibiæ scarcely dilated.

6 A. **basalis**, oblongo-ov convexus, piceus, parcius subtiliter punctatus, thorace basi medio ytris lateribus lævibus, stria laterali subtili, pygidio punctulato. I

Abræus basalis Lec., Annals New York, 5, 170.

Gila and Colorado Rivers, Ca der the bark of Cottonwood. This species is very similar in form x, but is a little less convex. The more distinct punctuation of the nd the finely punctulate pygidium will at once distinguish it. Th of the elytra are less mixed with rugæ posteriorly; the sides and are smooth; the lateral stria is fine, and the postpectus is sparsel d; the anterior tibiæ are scarcely dilated.

From A. analis it differs by the les s and more distinct punctuation, as well as by the less deep lateral stria.

(A. **analis**, piceus modice conve leviter ovalis thorace punctulato, basi medio marginato, elytris punc ostice subrugosis, lateribus lævibus, stria laterali profunda, pygidio, su unctulato. Long. ·027,

One specimen from Cuba, kindly sent by Don Felipe Poey. The distinctive characters are already pointed out under the preceding species.)

7. A. **politus**, rufo-piceus, subovalis, modice convexus, lævissimus, stria laterali subtili. Long. ·025.

Middle, Southern and Western States, abundant under stones. This species has entirely the form of A. simplex, but is destitute of punctures both above and beneath. The lateral stria is fine but distinct, the anterior tibiæ are scarcely dilated. I have distributed this insect under the name A. *lævigatus* on account of Hister lævigatus *Payk.* I have thought it better to change this name. Paykull's species is not an Abræus, as conjectured by my father, but is evidently a species of **Cærosternus** *Lec.*, and only differs from the Cuban C. lævissimus *Lec.* (Proceed. Acad. 6, 40,) in having the pectus slightly punctured. It has not been since seen Paykull's time, and is probably a West Indian species. Further comparison is necessary to determine whether Cærosternus should not be reunited to Tribalus; the rounded margin of the prosternum might be called a short broad lobe, while the lateral extension, although not lobed in its outline, might be but a very slight variation of the form described by Erichson.

8. A. **maritimus**, oblongus fere depressus, niger, thorace subtilius, elytris sat dense punctatis, pygidio lævi. Long. ·045.

Abræus maritimus Le Conte, Ann. Lyc. of New York, 5, 170.

San Diego, California, under decomposing kelp on the shores of the ocean. This species, in form and size, equals our common Plegaderus transversus, but has all the characters of the present genus. The thorax is finely punctured, the sides are scarcely rounded; the elytra are distinctly punctured, the punctures becoming slightly aciculate posteriorly; there is a slight vestige of an oblique stria at the base: the epipleuræ are almost smooth, the lateral stria deep; the pectus and abdomen are scarcely punctured; the pygidium is impunctured; the anterior tibiæ are gradually and broadly dilated.

9. **A. exiguus**, oblongus, fere depressus, niger, thorace densius, elytris distinctius punctatis, pygidio punctulato. Long. ·03.

Abræus exiguus Erichson, Klug's Jahrb., 208.

Abræus aciculatus Le Conte, Bost. Journ. Nat. Hist. 5, 54; tab. vi. fig. 10.

Abræus obliquus Le Conte, Bost. Journ. Nat. Hist. 5, 54; tab. vi. fig. 12.

Abundant in the Southern States, and found also at Fort Laramie, Nebraska. Body oblong, subdepressed. Thorax densely, distinctly punctured, sometimes slightly rugous. Elytra more coarsely punctured, posteriorly more or less aciculate; lateral stria deep. Postpectus and abdomen coarsely punctured. Pygidium finely but distinctly punctulate. Feet rufous, anterior tibiæ very slightly dilated.

There is frequently a trace of an oblique stria at the base of the elytra: the concavity of the epipleuræ in this, as in some other species, causes the lateral stria in some lights to appear double.

Two specimens, which appear somewhat broader and more depressed than ordinary, form *Abræus obliquus* Lec., but after a very close examination, I cannot find any sufficient distinction. By the thorax in the one described being dislocated, so as to show the posterior edge, it was incorrectly described by my father as margined at the base.

A. atomus, rotundatus, fere depressus, rufus, thorace elytrisque aciculato-punctatis, pygidio vix punctulato. Long. ·03.

One specimen from Cuba, kindly sent by Don Felipe Poey. Body circular, depressed, shining rufous. Head finely punctulate. Thorax and elytra coarsely and densely punctured, punctures somewhat aciculate; epipleuræ? Pygidium finely and obsoletely punctulate; anterior tibiæ not dilated.

I am not able to make a satisfactory examination of the under surface, but the form, color and punctuation are sufficient to separate it at once from the preceding species, to which alone it is allied.

BACANIUS *Lec.*

Prosternum latum, postice truncatum, antice breviter lobatum, et late rotundatum, non striatum; mandibulæ subretractæ; scrobiculi antennales magni, diffusi, ad medium thoracis partis inflexæ siti; antennæ funiculo tenui, articulis penultimis rotundatis, capitulo ovali modice compresso; pygidium inflexum; tibiæ anticæ dilatatæ, posteriores angustæ; tarsi omnes 5-articulati.

Although from the want of specimens for dissection, I am able to give but a meagre description of this genus, the characters above stated will show the necessity of separating it from Abræus, with which, from the size and form of the body, the species might be confounded. The distinction between this genus and Dendrophilus is however not so well defined; for the present it can be said, that the prosternum in Dendrophilus is rounded posteriorly and elevated in the middle and bistriate; the mesosternum is emarginate; the middle and posterior tibiæ are broadly dilated, and the pygidium is perpendicular.

Paromalus has the prosternum similar to Dendrophilus. In both the mesosternum is emarginate, while in Bacanius it is truncate.

The species constituting the second division below, ought probably to form a new genus, but the specimen has lost the antennæ, and I therefore postpone the farther consideration of the subject till new specimens are obtained.

1. **B. tantillus**, rotundatus, convexus, rufus, nitidus, minus subtiliter punctatus, elytris stria marginali antice abbreviata, pygidio punctulato. Long. ·035.

Middle and Southern States, under bark and in fungi. Body convex round, almost globose, brownish red, shining. Head finely sparsely punctulate. Thorax not densely, distinctly punctured. Elytra more coarsely punctured than the c, with traces of oblique striæ, near the base; marginal stria distinct, but xtending in front of the middle; epipleuræ sparsely punctured, with indistinct traces of a lateral line. Pygidium strongly inflexed, finely punctured. eneath coarsely punctured; anterior tibiæ somewhat suddenly and broadly

nisellus, rotundatus, convexus, rufus, nitidus, thorace parce punctulo ytris punctatis, stria marginali integra, pygidio lævi. Long. ·03. ns from New York, under bark. Similar in form to the pre- ch smaller; the thorax is more finely punctured; the marginal tra is entire, anteriorly receding from the margin; the lateral ore distinct than in B. tantillus; the pygidium is smooth; under t as in the preceding.

. Pygidium perpendiculare; elytra acute marginata.

B? marginatus, rotundatus, modice convexus, niger, subnitidus, dense punctatus, elytris marg to, pygidio punctulato. Long. ·06. e specimen from Illinois Body rounded, slightly and regu- larly convex, forming a sn sphere, black, somewhat shining. Head densely punctulate. punctured, lateral margin longitudinally impressed. Elytra d, with slight vestiges of external oblique striæ at the ba harply defined; marginal stria obsolete; epipleuræ broad, um perpendicular, finely punctured. Under surface punctured, ior tibiæ curved inwards, slightly dilated; posterior tibiæ very

The Committee on the f per by Dr. Greene, reported in favor of publication in the

Chemical Investigation ins of Fossil Mammalia.

By FRANCI REENE, M. D.

At the request of Dr. F. A. Genth, I have made in his laboratory a chemical investigation of several fossil remains, collected by D. D. Owen, M. D., in his late survey of Nebraska Territory. The specimens, which consisted of a brown portion of bone from a Titanotherium, the enamel and dentine of a tooth of the same animal, and a portion of the tibiæ of an Archæotherium, were kindly furnished me by Dr. Joseph Leidy from the collection of the Academy of Natural Sciences.

The general outline of the methods pursued in determining the constituents of these specimens is as follows:

The finely-powdered substance, being always dried over sulphuric acid, was dissolved (according to H. Rose's method for the determination of phosphoric acid) in nitric acid, and after adding mercury in sufficient quantity to combine with the phosphoric acid, it was evaporated to dryness in a water bath. Afterwards it was moistened with water and again evaporated to dryness; this operation being repeated until no odor of nitric acid could be observed at the temperature of the water bath. To this dried mass water was now added. The insoluble portion consisted only of phosphate and basic nitrate of mercury, (except in one analysis, in which iron existed in determinable quantity;) the solution contained fluoride of mercury and the other constituents as nitrates. This was filtered off, and the insoluble phosphate, after being washed and thoroughly dried, was fused with carbonate of soda, with all the precautions mentioned by Rose. The fused mass, consisting only of phosphate of soda and the excess of carbonate of soda, dissolved therefore completely in water, except in one analysis, in which a portion of the iron remaining undissolved, was filtered off and determined in the usual manner. This watery solution was then acidulated with hydrochloric acid, and the phosphoric acid precipitated in the ordinary way by sulphate of magnesia.

From the solution containing the soluble nitrate and fluoride of mercury, the mercury was precipitated by chloride of ammonium, and the filtrate from the calomel precipitated by carbonate of ammonia. As carbonate of lime and fluoride of calcium are both slightly soluble in ammoniacal salts, a small quantity of each was always deposited on evaporation of the filtrate; this was separated by filtration and added to the other portion of carbonate of lime and fluoride of calcium. This precipitate was ignited, and an excess of acetic acid added, which dissolved the carbonate of lime, leaving the greater portion of the fluoride of calcium; but, as fluoride of calcium is soluble to a certain extent in acetic acid, the whole was evaporated to dryness to get rid of the free acetic acid, and the dry acetate of lime dissolved in boiling water, and filtered from the insoluble fluoride of calcium. It being found that it always contained a small quantity of silicic acid, the mixture, after being weighed, was treated with hydrochloric acid, which left the silicic acid undissolved, the quantity of which was determined and subtracted from the previous weight, thus leaving the exact weight of the fluoride of calcium.

The solution from the carbonate of lime containing magnesia and the alkalies, was evaporated to dryness to drive off the ammoniacal salts, and the residue dissolved in sulphuric acid, the excess of which was also driven off by heat. The dry mass was dissolved in water, and acetate of baryta added to convert the sulphates into acetates. The filtrate from the insoluble sulphate of baryta was then evaporated to dryness in a platinum crucible and heated, in order to convert the acetates of baryta, magnesia and the alkalies into carbonates, which were treated with boiling water, and the soluble alkaline carbonates thus separated from the insoluble carbonates of magnesia and baryta. The latter mixture was then treated with diluted sulphuric acid, and the magnesia afterwards separated from the filtrate as phosphate of magnesia and ammonia. The carbonates of the alkalies were converted into and weighed as chlorides, and afterwards separated by bichloride of platinum.

A new portion was taken for the remaining determinations. This was dried at 220° until the weight became constant, the loss giving the quantity of water. The anhydrous substance was then heated in an open crucible until all the organic matter was burned off, and then moistened with carbonate of ammonia, as it was supposed that the high heat might have expelled a portion of the carbonic acid. The difference of weight gave the quantity of organic matter. The carbonic acid was determined in the usual manner from the loss of weight after treating with nitric acid. The nitric acid did not dissolve a small quantity of silicic acid, the weight of which was ascertained and added to the other portion. From the filtrate sulphuric acid was precipitated as sulphate of baryta.

The following are the characteristics of the specimens and the data of the analysis:

Specimen 1.—Bone of Titanotherium. Compact, with subconchoidal fracture. Tough. Hardness=4.5. Sp. gr.=2.87 (at 20° C.) Lustre, resinous. Color, brown. Opaque. On heating in a tube gives off ammoniacal water together with the odor of burned horn.

I. 1.9136 grms. gave:

1.0200	grms. of	Pyrophosphate of magnesia, (for PO_5).
0.0018	"	Silicic acid.
0.0340	"	Sesquioxide of iron.
0.0137	"	Fluoride of calcium.
0.0175	"	Pyrosphosphate of magnesia, (for MgO).
1.6995	"	Carbonate of lime.
0.0504	"	Chlorides of potassium and sodium.
0.0127	"	Platinum=0.0096 chloride of potassium.

II. 1.5776 grms. gave:

0·0090	grms. of	Sulphate of baryta and silicic acid, which contained
0.0086	"	Sulphate of baryta, and
0.0004	"	Silicic acid.
0.0404	"	Sulphate of baryta (for SO_3).
0.0645	"	Carbonic acid.
0.0323	"	Water.
0.0896	"	Organic matter.

Specimen 2.—Tooth of Titanotherium.

a. Enamel. Fibrous, with uneven fracture. Very tough. Hardness=4.7. Sp. gr.=3.03 (at 20°C.) Lustre, surface vitreous, fibres pearly. Color bluish gray.

I. 1·6226 grms. gave:

0.9966	grms. of	Pyrhphosphate of magnesia (for PO_5).
0.0079	"	Silicic acid.
0.0016	"	[illegible]alcium.
0.0099	"	Py[illegible]e of magnesia (MgO.)
1.4999	"	Ca[illegible]at[illegible] lime.
0.0454	"	C[illegible]de[illegible] potassium and sodium.
0.0081	"	P[illegible]um[illegible]0061 chloride of potassium.

II. 1.8518 grms. gave[illegible]

0.0545	grms. o[illegible]	[illegible]ite[illegible]aryta (for SO^3).
0.0023	"	[illegible]a[illegible]
0.0586	"	[illegible]ni[illegible].
0.0116	"	[illegible]
0.0470	"	[illegible]er.

Specimen 3.—Tooth of Titanoth[illegible].

b. Dentine. Compact. Fract[illegible] un[illegible]n, somewhat subconchoidal. Hardness=2.5. Sp. gr.=2.93 (at 20°C.) [illegible]re dull. Opaque. Color white, with gray spots and black streaks. Assum[illegible]eenish tint when heated in presence of air, owing to the formation of man[illegible] acid.

I. 2.0083 grms. gave:

1.1318	grms. of	Pyrophosphate of magnesia (for PO_5).
0.0129	"	Silicic acid.
0.0582	"	Fluoride of calcium.
0.0297	"	Pyrophosphate of magnesia (for MgO.)
1.7829	"	Carbonate of lime.
0.0356	"	Chlorides of potassium and sodium.
0.0095	"	Platinum=0.0072 chloride of potassium.

II. 1.1643 grms. gave:

0.0509	grms. of	Sulphate of baryta (for SO_3).
0.0018	"	Silicic acid.
0.0330	"	Carbonic acid.
0.0245	"	Water.
0.0310	"	Organic matter.

Specimen 4.—Tibia of Archæotherium.

Compact. Fracture uneven, somewhat splintery. Hardness = 4. Sp. gr. =2.82 (at 20°C,) Lustre pearly. Opaque. Color, pinkish white. Assumes a greenish tint when heated in the presence of air. The cavities contain crystallizations of quartz, and sometimes of sulphate of baryta.

I. 2.1037 grms. gave:

1.0243	grms. of	Pyrophosphate of magnesia, (for PO_5).
0.1070	"	Fluoride of calcium.
0.0668	"	Pyrophosphate of magnesia (for MgO.)
1.7639	"	Carbonate of lime.
0.0714	"	Chlorides of potassium and sodium.
0.0122	"	Platinum, = 0.0092 chloride of potassium.

I. 1.7400 grms. gave:

0.0345	grms. of	Sulphaie of baryta and Sil. acid, which contained
0.0300	"	Sulphate of baryta, and
0.0045	"	Silicic acid.
0.0814	"	Sulphate of baryta, (for SO_3).
0.0395	"	Carbonic acid.
0.0343	"	Water.
6.0711	"	Organic matter.

The analyses gave the following composition:

	Spec. 1.	Spec. 2.	Spec. 3.	Spec. 4.
Fe_2O_3 - - -	1.777	trace	trace	trace.
MnO - - -	trace	trace	trace	trace.
MgO - - -	0.348	0.219	0.53	1.140
CaO - - -	49.837	51.872	45.82	47.052
CaFl - - -	0.716	0.099	2.90	5.086
BaO - - -	0.359	—	—	1.131
NaO - - -	1.134	1.288	0.75	1.572
KO - - -	0.317	0.239	0.23	0.276
SiO_3 - - -	0.135	0.611	0.79	0.259
SO_3 - - -	1.067	1·011	1.51	2.900
PO_5 - - -	34.148	39.348	36.10	[*]32.957
CO_2 - - -	4.098	3.165	2.83	2.270
Cl - - -	trace	trace	trace	trace.
HO - - -	2.046	0.626	2.10	1.971
Org. Mat. -	5.082	2.538	2.66	4.086
	101.656	101.016	100.22	100.00

which may be considered as

	Spec. 1.	Spec. 2.	Spec. 3.	Spec. 4.
$2 Fe_2O_3, 3PO_5$	2.821	—	—	—
$3 MgO, PO_5$ -	0.770	0.483	0·98	2.099
$3 CaO, PO_5$ -	69.685	83.825	77.81	60.583
$2 NaO, PO_5$ -	1.415	1.413	—	1.079
BaO, SO_3 - -	0.547	—	—	1.723
NaO, SO_3 - -	1.083	1.437	1.71	2.443
KO, SO_3 - -	0.587	0.442	0.43	0.510
CaO, SO_3 - -	—	—	0.60	—
$3 CaO, SiO_3$ -	0.382	1.727	2.23	0.732
CaO, CO_2 - -	9.315	7.212	6.45	5.172
CaO - - - -	6.605	1.284	2.35	6.517
CaFl - - -	0.716	0.099	2.90	5.086
HO - - - -	2.048	0.626	2.10	1.971
Org. Matter -	5.082	2.538	2.66	4.086
	101.656	101.16	100.22	100.000

The analyses which have already been made show a great similarity of composition as far as regards the inorganic constituents of fossil and recent bones of mammalia, a fact which receives still further confirmation from the above analyses. In some few points it will be noticed that the inorganic constitution of these specimens differs from that of analyses already published. This difference may be accounted for by the effects of infiltration, by which a portion of the original substances may have been washed out, whilst its place was supplied by extraneous matter. All the analyses show an excess of lime, which very probably exists in the form of a basic lime salt, similar to compounds well known in mineralogy.

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[*] As a small quantity of phosphoric acid was lost in its determination, the loss in the analysis was calculated as phosphoric acid.

In order to test the correctness of the opinion that fossil bones contain fluoride of calcium in larger proportion than recent ones, the fluoride of calcium was determined with the greatest care. In no instance, however, was so large a quantity found as in the analyses of fossil reptiles by Baumert,* where the quantity of fluoride of calcium in the Zeuglodon macrospondylus amounts to 9.54 per cent. and in the Hydrarchos even to 16.67 per cent. By direct determination, Heintz† found the quantity of fluoride of calcium in two human bones to be 2.97 and 2.05 per cent; the former of which corresponds almost exactly with the quantity found in the dentine of Titanotherium. In the tibia of the Archæotherium, a portion of the fluoride of calcium may have been introduced in the same manner as the quartz and sulphate of baryta.

The Committee on the followi pers by Dr. Genth, reported in favor of Publication.

On a new variety of Gray (, perhaps a new mineral.

By Dr. F ENTH.

Massive, apparently without any ine structure. H=4.5; Sp. Gr.? ; color nearly iron-black, when in ver splinters subtranslucent with cherry red color; streak brownish red: lust -metallic; fracture sub-conchoidal; brittle.

B. B. fuses readily =1; gives off the ordor of arsenic and sulphurous acid, leaving incrustations of antimony and zinc; with carbonate of soda on charcoal yields a globule of silver and copper. Soluble in nitro-hydrochloric acid with separation of chloride of silver.

The analysis gave the following composition:

Silver	= 10·53	p. c.	requires	1·57 S	for	Ag S	11.43
Copper	= 30.73	"	"	7.80 S	"	Cu_2 S	
Zinc	= 2.53	"	"	1.25 S	"	Zn S	
Iron	= 1.42	"	"	0.81 S	"	Fe S	
Arsenic	= 11.55	"	"	7.42 S	"	As S_3	14.05
Antimony	= 17.77	"	"	6.73 S	"	Sb S_3	
Sulphur	= 25.48	"	"				
	100.00			25.48			

It is found at McMackin's Mine, Cabarras County, N. C., but rarely, and is associated with Iron Pyrites, Galena, Blende, Talc and Carbonate of Magnesia.

The sulphur ratio of the sulpho-bases and sulpho-acids is = 11.43 : 14.05
=1 : 1.23

corresponding with the formula 5(Ag., Cu_2, Zn Fe) S+2 (As, Sb)S_3.

I had, as the data of the analysis will show, but a very small quantity of the mineral, and, therefore, although this formula is that of a new mineral, I am unwilling to give it a new name, until more of it will be found, and the analysis repeated; at present it is preferable to consider it as a variety of gray copper, whose composition is expressed by the formula 4RS+RS_3.

The following are the methods and data of the analysis: 0·1330 grs. were dissolved in nitro-hydrochloric acid, and the chloride of silver filtered after diluting with a large quantity of water. It gave 0.0140 grs. metallic silver. The filtrate was evaporated almost to dryness, and heated with sulphite of soda; and, after in this manner the arsenic acid had been reduced to arsenious acid, the excess of this reagent decomposed by hydrochloric acid. A current of hydrosulphuric acid was then passed through the solution, which precipitated sulphides of copper, of arsenic, and of antimony. This precipitate was filtered and treated with sulphide of ammonium. The remaining sulphide of copper was oxydized by nitric acid, and the oxide precipitated by caustic potash. It gave 0.0512 grs.

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* Liebig und Kopp, Jahresbericht für 1851, p. 504.

† Pogg. Ann. V. 77, p. 267.

The solution containing antimony and arsenic was boiled with hydrochloric acid and chlorate of potash, then tartaric acid, an excess of chloride of ammonium and ammonia added, and the arsenic acid precipitated by sulphate of magnesia as arseniate of magnesia and ammonia. From the quantity of magnesia in this double salt, the arsenic was found by calculation. The weight of magnesia was 0.0082 grs. The filtrate from the sulphides of copper, arsenic and antimony was oxydized by nitric acid, and the sesquioxide of iron precipitated by ammonia; it was 0.0027 grs.; the zinc was thrown down from the filtrate of iron by sulphide of ammonium, and gave 0.0042 grs. oxide of zinc.

Sulphur and antimony was determined from the loss, and by calculation.

On Owenite, a Mineral.

By Dr. F. A. Genth.

Formula.—$2(3RO, SiO_3) + (3R_2O_3, SiO_3) + 6HO$.

Massive aggregate of minute scales; cleavage distinct in one direction.

H. =2.5; Sp. Gr. (at 20° C.) =3.197; lustre pearly; color olive green; streak paler; very tough; fracture subconchoidal; the powder greasy to the touch; odor argillaceous.

B. B. fuses easily = 3; and gives an iron-black magnetic globule; with borax gives the reaction of iron, and with soda slightly those of manganese. Yields water in the matrass. Dissolves in hydrochloric acid.

Mr. Peter Keyser has analysed it in my laboratory, and found the following composition.

	I.	II.	Mean.	Contains Oxygen.	
Silicic acid . .	23.101	23.317	23.21	12.05	
Sesquioxide of Iron .	13.895	13.881	13.89	4.16	11.45
Alumina . . .	15.532	15.642	15.59	7.29	
Oxide of Iron . .	34.578		34.58	7.68	8.39
Oxide of Manganese .	trace.				
Magnesia . . .	1.159	1.371	1.26	0.49	
Lime . . .	0.286	0.431	0.36	0.10	
Soda . . .	0.410		0.41	0.11	
Potash . . .	0.076		0.08	0.01	
Water . . .	10.835	10.354	10.59	9.42	
	99.872	100 060			

Found at Harper's Ferry, Virginia, in metamorphic rocks with quartz. I has impressions of Dolomite.

The name is given in honor of D. D. Owen, M. D., U. S. Geologist.

The ratio of the oxygen of RO : R_2O_3 : SiO_3 : HO, is:

8.39 : 11.45 : 12.05 : 9.42
.1 : 1.36 : 1.43 : 1.12, or very near
.1 : 1.50 : 1.50 : 1.00, corresponding with the formula

$$2(3RO, SiO_3) + (3R_2O_3, SiO_3) + 6HO.$$

The Owenite is closely allied to some other minerals, viz.: Aphrosiderite and Thuringite. All three resemble each other very much, and only by chemical examination their difference can be detected.

Aphrosiderite is a mineral not generally known; found at several localities in Nassau, and first distinguished from earthy chlorite by Fridolin Sandberger, who gave an analysis of it in his "Uebersicht der geol. Verhältnisse des Herzogthums Nassau;" but without calculating its formula. He found that it contains:

Silicic Acid	= 26.45	contains Oxygen	=	13.73		2.00
Alumina	21.25	"	"	9.93		1.44
Oxide of iron	44.24	"	"	9.82	10.23	1.49
Magnesia	1.06	"	"	0.41		
Water	7.74	"	"	6.88		1.00
	100.74					

This ratio leads to the formula: $3(RO, SiO_3)+(3\ Al^2O_3\ SiO_3+6HO$.

Breithaupt's Thuringite is, according to an analysis of Rammelsberg, $3(3RO, SiO_3)+(2\ Fe_2O_3, SiO_3)+HO$.*

These three minerals are therefore:

Owenite	$2(3RO, SiO_3)+(3R_2O_3, SiO_3)+6HO$.
Aphrosiderite	3 $+3Al^2\ O_3, SiO_3)+6HO$.
Thuringite	3 $+(2\ Fe_2\ O_3, SiO_3)+9HO$.

The following are the data of Mr. Ke 's analyses, and the methods used for the determination of the different co tuents:

I.	2.0770	Grammes	ral gave:
	0.4798	"	.
	1.0865	"	e of iron.
	0.3226	"	
	0.0670	"	osphate of magnesia.
	0.0106	"	ate of lime.
	0.0185	"	ide of potassium and sodium.
	0.0033	"	inum = 0.0025 chloride of potassium.
II.	1.2898	"	gave:
	0.4056	"	Gold.
III.	1.8920	"	gave:
	0.2050	"	Water.
IV.	0.1545	"	gave:
	0.1195	"	Water.
V.	1.3668	"	gave:
	0.3187	"	Silicic acid.
	0.7148	"	Sesquioxide of iron.
	0.2138	"	Alumina.
	0.0495	"	Pyrophosphate of magnesia.
	0.0105	"	Carbonate of lime.

I. The finely powdered mineral was dissolved in hydrochloric acid, and silica separated in the usual way, with the necessary precautions. In the filtrate the oxide of iron was higher oxydized by nitric acid, and sesquioxide of iron and alumina precipitated by ammonia; an excess of acetic acid was added to the precipitate and repeatedly evaporated to dryness in a water bath. In this manner the acetates of iron and alumina were decomposed, and sesquioxide of iron and alumina separated from the soluble acetates by filtration. Alumina and iron were separated by caustic potash. Lime precipitated from the acetates evaporated to dryness, and heated until the ammoniacal salts were expelled; from the residue the magnesia was separated from the alkalies by oxide of mercury; the chlorides of alkalies were weighed together and afterwards separated by bichloride of platinum.

II. The mineral was dissolved in hydrochloric acid and cooled, while a constant current of carbonic acid passed over it, in order to prevent the oxidation of oxide of iron by atmospheric air; then a sufficient quantity of ter chloride of gold and sodium were added, and the reduced gold filtered after 24 hours' standing. From the weight of gold the quantity of oxide of iron was found by calculation.

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* Rammelsberg Handwörterbuch, etc., Supplement III.

III. and IV. For the determination of water, the mineral was exposed to a bright red heat in a well covered platinum crucible. The loss in weight gave the quantity of water; but this was always a little too low, because a small quantity of oxide of iron was found to have higher oxydized.

V. In analysis V. the silica was separated as above, then the filtrate oxydised by nitric acid and alumina, with sesquioxide of iron precipitated by ammonia. The precipitate was boiled with caustic potash in a silver vessel, and thus sesquioxide of iron was separated from alumina. The precipitate of sesquioxide of iron was dissolved in hydrochloric acid and precipitated by ammonia. The filtrate of it containing still a small quantity of magnesia was added to the liquid containing lime and magnesia. The lime was precipitated by oxalate of ammonia and from the filtrate of oxalate of lime, the magnesia by phosphate of soda.

The Committee on Mr. Cassin's description of a new Scalops, reported in favor of publication in the Proceedings.

Description of a new Mole of the genus Scalops, from Oregon; a specimen of which is in the collection of the Exploring Expedition made by the U. S. Ships Vincennes and Peacock, under the command of Captain Charles Wilkes, of the United States Navy.

By John Cassin.

SCALOPS ÆNEUS, *nobis.*

Dentition.—Upper jaw, after the two incisors, having on each side seven false molars, which are pointed and nearly equal, except the last, which is double the size of either of the others, and has a small exterior basal lobe. Molars three, the first with four external lobes, the anterior being very small, the second large and pointed, the third short, blunt and deeply emarginate, the fourth lobe also blunt and short; besides these the first molar has one interior and one posterior lobe, second molar with three short external lobes, the intermediate one emarginate; also two interior large and pointed, and one posterior similar to the interior lobe; third molar with two short external lobes, the posterior one emarginate, and two interior lobes and one posterior lobe.

Lower jaw with two incisors on each side, the anterior of which is the shorter; these are followed by six false molars, which are pointed and nearly equal in size, except the last, which is much larger and furnished with a minute posterior lobe at the base. Molars three, each deeply sulcate on the external surface and composed of two large external lobes and three smaller and shorter internal lobes.

Dimensions.—Total length (of specimens in spirits) about 5 inches; head 2, fore feet 1.15, hind feet 1.40, tail 1.25 inches; first and fifth toes of fore feet equal, second shorter, first and fifth toes of the hind feet equal, other three nearly so.

Colors.—Entirely shining, brassy brown, very glossy, and in some lights appearing to be almost metallic; darker on the top of the head, and lighter and more obscure on the chin and throat; nose dusky; feet brownish; nails and first joint of the toes black; palms dusky; soles of the hind feet dark brown; tail light brown, thinly furnished with scattering bristles.

Obs.—This is the most beautiful species of mole yet discovered in America, and exhibits almost the brilliancy of color which distinguishes the remarkable South African animals which form the genus Chrysochloris, of this family.

A single specimen, apparently fully adult, is in the collection of the Exploring Expedition, labelled as having been obtained in Oregon. In its dentition and otherwise it is a strict congener of *Scalops Townsendii*, but is much smaller and of a different color. Its black claws are especially remarkable, and distinguish it from all other species of the genus.

The Committee on the following paper by Prof. Baird and Mr. Girard reported in favor of publication in the Proceedings.

List of Reptiles collected in California by Dr. John L. Le Conte, with description of new Species.

BY S. F. BAIRD AND CHARLES GIRARD.

[illegible]g species of reptiles were collected by Dr. Le Conte, during a [illegible]ration of California made in 1850–51. As in his previous travels [illegible]s parts of North America, Dr. Le Conte, in addition to the Co- [illegible] attracted his especial attention, collected in other departments [illegible]ory, making additions of greater or less extent in all.

[illegible] on, [illegible]gh co[illegible]ining all the species brought home by Dr. Le Co[illegible] ide[illegible] [illegible]rs actually collected. Owing to the breaking of [illegible]d th[illegible] [illegible]ansportation, many valuable species were lost, [illegible] the [illegible] from San Diego.

The Bat[illegible] San [illegible] collected in Februrary, 1850; the [illegible] from San Diego in May to Septem- [illegible] found at Benicia in August, and [illegible] Colorado specimens were mostly [illegible]851.*

[illegible]DIANS.

1. CROTALUS LUCIFER ?? B. and G. Proc. Acad. Nat. Sc., Phila., xi. 1852.
Hab.—San Diego, Cal. Owing to t[illegible] perfect condition of the specimen, (a dried skin,) it has been [illegible]te to what species this belongs. We have however, provision[illegible] the above, as the one to which it bears, the closest resemblance.

2. EUTAINIA ORDINOIDES, B. and G. Proc. Acad. Nat Sc., Phila., vi., 1852, 176, and Cat. N. Amer. Rept., I, 1853.
From San Francisco.

3. BASCANION VETUSTUS, B. and G. Cat. N. Amer. Rept., I, 1853.
From San José.

4. PITUOPHIS ANNECTENS, B. and G. Cat. N. Amer. Rept., I, 1853.
San Diego.

5. RHINOCHEILUS LECONTEI, B. and G. Cat. N. Amer. Rept., I, 1853.
San Diego.

6. CONTIA MITIS, B. and G. Cat. N. Amer. Rept., I, 1853.
From San José.

7. DIADOPHIS AMABILIS, B. and G. Cat. N. Amer. Rept., I, 1853.
From San José.

8. RENA HUMILIS, B. and G. Cat. N. Amer. Rept., I, 1853.
From Valleritas, Cal.

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* It is proper to remark, that besides the strong friendship manifested towards me and towards the objects of my journey, by all the officers stationed at the military posts which I visited, especial facilities were afforded by Major W. H. Emory, then in charge of the American Boundary Commission, whose valuable explorations in those desert regions have already contributed so much to science, and whose labors, I am happy to say, are still further illustrated by the collections made by me.—J. L. Lec.

SAURIANS.

1. Crotaphytus dorsalis, B. and G., Proc. Acad. Nat. Sc., Philad. vi., 1852, 126.
From the desert of Colorado.

2. Sceloporus occidentalis, B. and G., Proc. Acad. Nat. Sc. Philad. vi., 1852, 175.
From San Francisco.

3. Uta Stansburiana, B. and G., Proc. Acad. Nat Sc., Philad., vi., 1852, 69, and *Stansbury's* Expl. of Valley of Great Salt Lake, 1852, 345, pl. 5, fig. 1—6.

4. Uta ornata, B. and G., Proc. Acad. Nat. Sc., Philad., vi., 1852, 126.
From San Diego and San Francisco.

5. Phrynosoma coronatum, Blainv.—*Girard* in Stansbury's Expl. of Valley of Great Salt Lake, 1852, Append. C. 360, pl. 8, fig. 7—12.
From San Diego.

6. Cnemidophorus gracilis, B. and G., Proc. Acad. Nat. Sc., Philad., vi., 1852, 128.
From the Desert of Colorado.

7. Elgaria scincicauda, B. and G., Proc. Acad. Nat. Sc., Philad., vi., 1852, 69; and in *Stansbury's* Expl. Valley of Great Salt Lake, 1852, 348, pl. 4, figs. 1—3.
From California.

8. Plestiodon Skiltonianum, B. and G., Proc. Acad. Nat. Sc., Philad., vi., 1852, 69; and in *Stansbury's* Expl. of Valley of Great Salt Lake, 1852, 349, pl. 4. figs. 4—6.
From San Diego.

9. Anniella pulchra, Gray, Ann. and Mag. Nat. Hist. No 60. 1852, 440.
San Diego.

BATRACHIANS.

1. Bufo halophila, B. and G.—Above dark brown, beneath reddish brown, minutely blotched with black. A narrow pale ventral line from snout to coccyx. A broad patch of dull reddish extending a little obliquely from the eye to the edge of the mouth, narrowing below.
Hab. Benicia. Frequenting the edges of the sea, and jumping into the water when pursued.*

2. Hyla regilla, B. and G., Proc. Acad. Nat. Sc., Philad., vi. 1852, 174.
Syn. *Hyla scapularis*, Hallow., Proc. Acad. Nat. Sc., Philad. vi., 1852, 183.
Hab. San Francisa or San Francisco.

3. Litoria occidentalis, B. and G.—Throat smooth. Abdomen, sides of body and lower surface of thighs granulated. Tympanum very small. Fingers almost or entirely free; toes slightly webbed at the base; extremities of both not dilated. Color above pale chestnut, with obscure or obsolete blotches of darker. Beneath white. A few cross bands on the outside of the legs. A dark chestnut line beginning at the nostril, passes back through the eye, behind which it widens so as to include the tympanum, stopping just above the insertion of the arm. One or two oblique blotches of dark chestnut on each side.
Body 1 1-16th inches long; hind leg extended 1½ inch.
Hab. San Francisco.

4. Rana Lecontii, B. and G.—Snout moderately pointed. Tympanum very small, scarcely more than half the width of the eye. Skin quite smooth. A

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* Compare the habits of Leiuperus salarius Bell. Voy. of Beagle, Zool. Rept. 39, (Lec.)

broad fold of skin on each side from head to hind legs. Longest toe scarcely webbed beyond the penultimate joint.

Above dark olive, with rather large circular black blotches distributed pretty uniformly, though smaller on the sides. Each spot is lighter in the centre. Beneath yellow, marbled with dark brown, thickly crowded except about the groins A pale greenish line extends from just below the eye to the shoulder. Hind .limbs broadly barred with dark brown. Lateral cuticular fold paler, a black blotch at the base of the arm in front.

Darker above and below, smoother, and with the snout more acute than in *Rana Daytonii.*

Length 2½ inches. Hind limbs 3½.

Hab. San Francisco.

5. ANEIDES LUGUBRIS Baird. Iconographic Encyclopædia, II, 1849, (1st ed.) 256. *Salamandra lugubris* Hallow. Proc. Acad. Nat. Sc., Phila., IV., 1848, 126.

Hab.—San Francis[illegible]

[illegible] Ital., 1841. BAIRD, Journ. Acad N[illegible] *attenuata*, Eschsch. Zool. atl., 185[illegible] P[illegible]

[illegible] co.

[illegible] *torosa* Gray, but smoother, having [illegible] ail very much compressed, with a [illegible] ng the whole upper [illegible] posterior half of the lower. Color above dark purplish brown, ben[illegible] yellow, the line of demarcation very distinct. Body 3 inches long; [illegible]

Hab.—San Francisco.

The Committee on a paper b[illegible] Rev. Mr. Berkley and the Rev. M. A. Curtis, on the "Exotic Fungi from the Schweinitzian Herbarium, &c.," reported in favor of publication in the Journal.

The Report of the Corresponding Secretary was read and adopted.

ELECTION.

Mr. H. Cooper Hanson, of Philadelphia, was elected a *Member of the* Academy.

March 1st, 1853.

Vice-President **Bridges** in the Chair.

erc read—

;he Royal Society of Sciences of Stockholm, dated 20th Oct., nsmitting recent Nos. of its publications acknowledged this

;he same, of same date, acknowledging the receipt of late Nos. ·oceedings of the Academy, and requesting others deficient in

the Royal Academy of Sciences at Amsterdam, dated 5th Nov. cnowledging the receipt of the Proceedings, &c.

:he "Acad. C. L. C. Naturæ Curiosorum," dated Breslau, Nov. , transmitting the volume of its "Nova Acta," announced ing.

'L'Ecole des Mines," Paris, dated 6th Jan. 1852, requesting os. of the Journal and Proceedings of the Academy deficient ies.

the Smithsonian Institution, dated Washington, Feb. 16, cnowledging the receipt of the Proceedings Vol. 6, No. 6, and Vol. 2, Part 3.

the Secretary of the Troy (N. Y.) Young Men's Associa- ·d Feb. 21, 1853, requesting, for that Institution, the publica- the Academy.

March 8th.

Vice-President **Bridges** in the Chair.

dy called the attention of the members to several fossil fragments ssociation with the remains of Megalonyx, &c. in the neighborhood z, Mississippi.

he specimens is half of a lower jaw containing several teeth, of which s enveloped in a thick layer of peroxide of iron. It belonged to a Ursus, and presents no difference in size or otherwise from that of on Black Bear.

hers, consisting of a penultimate superior molar, and a fragment of a r containing the last molar, were referred to a new species of Bear, name of *Ursus amplidens*. The fragment of lower jaw is even less in the corresponding portion in the Black Bear, while the two teeth l are very nearly as large as the corresponding ones in the Grizzly ne comparative dimensions are as follows:

	U. americanus.	U. ferox.	U. amplidens.
ower jaw below the last molar	39 m. m.	50 m. m.	34 m. m.
sterior diameter of last lower	15 m. m.	20 m. m.	19 m. m.
e ditto	12 m. m.	14 m. m.	14 m. m.
sterior diameter of supra- nate molar	19 m. m.	21 m. m.	21 m. m.

March 15th.

Vice-President Wetherill in the Chair.

A letter was read from Mr. Jacob S. Miller, of Philadelphia, dated March 1, 1853, offering to present to the Academy the Gun of the late Alexander Wilson, the Ornithologist. Referred to the Curators.

Also a letter from Lieut. M. F. Maury, dated National Observatory, Washington, March 10, 1853, acknowledging the receipt of his notice of election as a Correspondent.

And a communication from the same, containing observations on Atmospheric Pressure, which was read and referred to a Committee consisting of Dr. Ruschenberger, Dr. Elwyn and Dr. Bridges.

A letter was read from Dr. H. Gibbons, dated San Francisco, Dec. 31, 1852, transmitting the specimens of fruit and leaves of Podocarpus, the donation of which was acknowledged at a previous meeting.

On motion of Mr Vaux, it was *Resolved*, That a Committee be appointed to ascertain at what price the Collection of Crania belonging to the Estate of the late Dr. Morton could be purchased for the Academy, and also whether that amount could be raised by subscription. Committee—Mr. Vaux; Dr. C. D. Meigs and Mr. John Cooke.

March 29th.

Vice-President Bridges in the Chair.

The Committee on Dr. Hoy's "Notes on the Ornithology of Wisconsin," reported in favor of publication in the Proceedings.

Notes on the Ornithology of Wisconsin.

By P. R. Hoy, M. D., of Racine, Wisconsin.

With few exceptions, the facts contained in the following brief Notes were obtained from personal observations made within 15 miles of Racine, Wisconsin, lat. N. 42° 42′; long. W. 88°. This city is situated on the western shore of Lake Michigan, at the extreme southern point of the heavy timbered district where the great prairies approach near the lake from the west, and is a remarkably favorable position for ornithological investigations. It would appear that this is a grand point, a kind of rendezvous, that birds make during their migrations. Here, within the last seven years, I have noticed 283 species of birds, about one-twentieth of all known to naturalists, many of which, considered rare in other sections, are found here in the greatest abundance. It will be seen that a striking peculiarity of the ornithological fauna of this section is, that southern birds go further *north* in summer, while northern species go further *south* in winter than they do east of the great lakes.

[* Indicates those known to nest within the State.]

VULTURINÆ, (1 species.)

*Cathartes aura, *Linn.*

Found occasionally as far north as Lake Winnebago, lat. 44°. More numerous near the Mississippi River.

FALCONIDÆ, (19 species.)

*Aquila chrysætos, *Linn.*

I have a fine specimen, shot near Racine, Dec. 1853.

It is a fact worthy of note that this noble eagle, in the absence of rocky cliffs for its eyrie, does occasionally nest on *trees*. One instance occurred between Racine and Milwaukee, in 1851. The nest was fixed in the triple forks of a a large oak.

Haliætus Washingtonii, *Aud.*

I procured, in 1850, a living bird that had been slightly wounded, which answered to Audubon's description of this *doubtful* species. I kept it in an ample cage upwards of two years, but before its death it underwent changes in plumage which led me to believe that, had it lived, it would have proved to be the white-headed species. I put several species of hawks and owls into the same apartment, several of which the eagle killed and devoured without ceremony. When a fowl was introduced, he pounced upon it, and without attempting to kill, proceeded to pluck it with the greatest unconcern, notwithstanding its piteous screams and struggles.

It is my opinion that the Bird of Washington will prove to be only an unusually marked large and fine immature white-headed eagle. My specimen, a female, measured 7½ ft. in alar extent.

***Hallætus leucocephalus**, *Linn.*

Numerous throughout the State. I have seen one of these fine birds pounce upon and capture a fish in the lake. The eagle did not disappear wholly under the water, which led me to suspect that the fish was in some way disabled.

***Pandion haliætus**, *Linn.*

Not uncommon.

***Falco peregrinus**, *Gmel.*

This noble falcon is frequently met with, although not so numerous as many other hawks. A pair nested for several years within ten miles of this city; constructing their nest on the top of a large red beech-tree.

I have seen one of these daring hawks make a swoop into a flock of blue-winged teal, killing two on the spot.

***Falco columbarius**, *Linn.*

This active little falcon is numerous, especially in spring and fall, during the migration of the smaller birds. A few nest with us, many more in the pine forests of the northern part of the State. Those that nest in this vicinity regularly morning and evening visit the lake shore, in quest of bank swallows, which they seize with great dexterity while on the wing.

Falco æralon, *Gmel.*

I have met with three individuals of this small species, Nov. 15th, 1849, Dec. 25th, 1850, and Dec. 12th, 1852.

***Falco sparverius**, *Linn.*

Common.

***Astur atricapillus**, *Wilson.*

This daring and powerful hawk is to be found at all seasons; the old birds only remain during winter, the young retiring further south. The young are so different in their plumage from the old birds, that few would suspect their identity; they are more bold and daring, much more destructive to the poultry yards than the more sly and cautious old ones—a peculiarity not, however, confined to this species.

***Astur Cooperii**, *Bonap.*

Not uncommon. They destroy many quails and young grouse, which, together with poultry, constitute their principal fare. They construct their nests on the top of large trees, in the most secluded situations, and leave us at the approach of winter.

***Astur fuscus**, *Gmel.*

Common. Nest here about the middle of April.

Ictinea plumbea, *Gmel.*

I saw a single specimen of this southern kite on Rock River in this State, in July, 1846. It is occasionally met with on the Mississippi River.

*Nauclerus furcatus, *Linn.*

This kite was numerous within ten miles of Racine, where they nested up to the year 1848, since which time they have abandoned this region. I have not seen one since 1850. They nested on tall elm trees about the 10th of June, and left us about the 1st of September.

*Buteo lagopus, *Wilson.*

Not numerous. I have repeatedly seen this buzzard *soar* to great heights, notwithstanding the testimony of some ornithologists to the contrary. They are in the habit, while in pursuit of mice, frogs, &c., of balancing themselves over marshy situations on the prairies. If not successful, they *sail* off to other more suitable grounds, and renew the same motion. When they espy the quarry, they dart directly upon it in the manner of the true falcon. Where there are trees, they may adopt a different mode of hunting. My observations apply to the prairies.

*Buteo borealis, *Gmel.*

Common. They do not remain with us during severe winters. I have a fine albino specimen of this species. Although pure white, the irides were *yellow*. This individual was known to inhabit a particular district in Huron Co., Ohio, for ten years. Although I had offered a liberal reward for the capture of the "white hawk," it was several years before I succeeded in getting him.

Buteo vulgaris, *Willoughby.*

Not numerous. One of our winter residents.

*Buteo pennsylvanicus, *Wilson.*

Common.

*Buteo lineatus, *Gmel.*

This noisy species is extremely numerous. The great number of hawks, of this and other species, that are often seen soaring in company during fine weather, about the 20th of September, at which time they are migrating south, is almost incredible.

*Circus cyaneus, *Linn.*

Common. They build their nests entirely of grasses (carex,) placed on the ground in the middle of swampy marshes. Nest about the 1st of June.

STRIGINÆ, (14 species.)

Surnia funerea, *Gmel.*

A few visit us every winter.

Surnia nyctea, *Linn.*

Numerous on the prairies from November to March.

*Scops asio, *Linn.*

Common. In the month of June I caught four young ones just as they were about leaving the nest. They were a deep reddish brown, in all respects similar to the old female which I shot at the time, and have preserved.

*Scops nævia, *Gmel.*

Common. I am not yet satisfied that the mottled and red owls are specifically the same.

*Bubo virginianus, *Gmel.*

One of our most numerous species. I once put a remarkably large and fine owl of this species into the same cage with the "Washington Eagle," previously mentioned, which soon resulted in a contest. The moment a bird was given to the owl, the eagle demanded it in his usual peremptory manner, which was promptly resisted with so much spirit and determination that for a time I was in doubt as to the result; but finally the eagle had to stand aside, and witness the owl devour the coveted morsel. After several similar contests, it was mutually settled that possession gave an undisputed right, the owl not being disposed to act on the offensive. I had a fine red-shouldered hawk in the same aviary, which the owl killed and ate the second night.

Bubo subarcticus, _Hoy._

This winter vistor I consider closely allied, yet distinct from the common horned owl, and as such it is described in the Proc. Acad. Nat. Sci. vol. vi. page 211. I have as yet examined but three specimens. The specimen in the collection of the Academy was known to carry off from one farm, in the space of a month, not less than twenty-seven individuals of various kinds of poultry, before it was shot.

Syrnium cinereum, _Linn._

Not numerous. I have a fine male specimen, shot near Racine, Jan. 4, 1848. A remarkable peculiarity of this specimen was, that the irides were _brilliant blood-red._ I saw one sieze and carry off a duck on Lake Superior, near the mouth of Cerf river, Sept. 1st, 1845.

*Syrnium nebulosum, _Linn._

Common in the heavy timbered districts.

*Otus vulgaris, _Aud._

More numerous in the vicinity than any other owl. The young leave the nest about the middle of June.

*Otus brachyotus, _Linn._

Common on the prairies, where they nest on the ground, in the tall grass. The young are fully fledged by the second week in June.

*Nyctale acadica, _Gmel._

Common.

Nyctale Tengmalmi, _Gmel._

I procured a single specimen near Racine, Nov. 30th, 1850. Not uncommon on the head waters of the Wisconsin river.

Nyctale Kirtlandii, _Hoy._

A third species of this genus, found here, and described in the Proc. Acad. Nat. Sci. vol. vi. page 210.

Only two specimens have yet been observed.

Strix flammea, _Linn._

A fine specimen of this handsome owl was obtained this spring by my friend the Rev. A. C. Barry, of this city. It was shot near this city, and is the only specimen which has come under my observation.

CAPRIMULGIDÆ, (2 species.)

*Antrostomus vociferus, _Wilson._

Common. Arrives about the 1st of May, departs middle of September.

*Chordeiles virginianus, _Briss._

Numerous. They leave us by the 15th of September. On the 10th of this month, 1850, for two hours before dark, these birds formed one continuous flock, moving south. They reminded me, by their vast numbers, of passenger pigeons, more than night hawks. Next day not one was to be seen.

HIRUNDINIDÆ, (6 species.)

*Progne purpurea, _Linn._

Common.

*Hirundo americana, _Wilson._

Numerous.

*Hirundo fulva, _Vieill._

A few nested for the first time at Racine in 1852. Numerous in many parts of the State.

•HIRUNDO BICOLOR, *Vieill.*
Not a numerous species with us. Arrives from the 1st to the middle of April.

•COTYLE RIPARIA, *Linn.*
This numerous species perforates the banks of the lake, wherever the soil is sandy.

•CHÆTURA PELASGIA, *Temm.*
Common.

HALCYONIDÆ, (1 species.)

•CERYLE ALCYON, *Linn.*
Common.

LANIADÆ, (3 species.)

•LANIUS BOREALIS, *Vieill.*
This large shrike is most numerous during fall and winter. A few, however, spend the summer in the middle and northern parts of this State. During winter they subsist on field mice (arvicola,) and small birds.

•LANIUS LUDOVICIANUS, *Linn.* ?
I much doubt whether the north-western and southern loggerhead are the same. Our bird is *smaller* than the southern, as described in the ornithological works, the adult male measuring 8½ to 12¼ ; female 8¼ to 10¼. The nest and eggs, too, differ materially from Bachman's description, as quoted by Nuttall, of those of the southern species. The Wisconsin bird constructs a compact nest, placed on the lower branches of a small tree. It is composed externally of small sticks and roots, filled in with strips of bark and the lint of various species of plants, and is amply lined with feathers, which almost conceal the six *spotted* eggs.

The male assists in incubation, which is completed in fourteen days.

I once shot a female just as the pair had commenced building. The male went on and completed the nest, even to the soft lining of feathers, then took his stand on the topmost branch of the same tree, and continued watching almost constantly for three days, apparently awaiting the return of his mate. At the end of that time I missed him, and supposed he had abandoned the spot: but the second day afterwards, he returned with a new bride, who appeared well satisfied with the waiting nest, and commenced laying immediately.

They return to a particular tree to nest every year. This attachment is so great, that when the nest is destroyed, even after they commence incubation, they not unfrequently construct another on the same tree. Mice, young birds and large insects compose their fare.

Numerous on the border of the prairies. Arrive 1st of April; depart in October.

LANIUS EXCUBITOROIDES, *Swains.*
I shot a pair of birds of this species in March last (1853.) The female is faintly marked on the breast with pale brown undulating lines. This is undoubtedly a distinct species.

MUSCICAPIDÆ, (14 species.)

•TYRANNUS INTREPIDUS, *Vieill.*
Common.

•TYRANNUS CRINITUS, *Linn.*
Not so common as the preceding. Inhabits the dark swampy woods, where the harsh *squeak* of this species is frequently heard.

•TYRANNULA FUSCA, *Gmel.*
This familiar pewee is met with everywhere.

•TYRANNULA VIRENS, *Linn.*
Common in the deep solitary woods.

Tyrannula phœbe, *Lath.*
I shot two individuals of this species May 10th, 1848. Probably not very rare, but impossible to distinguish it from the T. fusca without carefully comparing the two.

*Tyrannula acadica, *Gmel.*
The most numerous of the fly-catchers in Wisconsin.

Tyrannula pusilla, *Swains.*
This species, so closely allied to the preceding, is not unfrequently met with about the 10th of May, on its passage north.

Tyrannus Cooperii, *Nutt.*
I have occasionally met with this bird during the latter part of May.

*Setophaga ruticilla, *Linn.*
Numerous. Arrive 5th of May; commence constructing their nests 1st of June.

*Setophaga mitrata, *Bonap.*
Not numerous near Racine, which may be considered the northern limit of this bird's summer migration.

*Setophaga canadensis, *Linn.*
This interesting species is not uncommon with us.

Setophaga Wilsonii, *Bonap.*
Common from the 10th to the 25th of May.

Setophaga minuta, *Wilson.*
Rarely met with. The only specimens I have were shot 1st of June, 1850.

*Culicivora cerulea, *Linn.*
Not uncommon. Arrives first of May.

VIREONINÆ, (6 species.)

*Vireo flavifrons, *Vieill.*
Not uncommon. First appearance from 10th to 15th of May.

*Vireo solitarius, *Vieill.*
This is by no means a rare bird in Wisconsin; it frequents the most secluded thickets. Arrives about 15th of May.

*Vireo noveboracensis, *Gmel.*
I have noticed but few specimens of this species. Not common.

*Vireo gilvus, *Vieill.*
This cheerful songster is rather scarce with us, perhaps the least numerous of the *Vireos.*

*Vireo olivaceus, *Linn.*
By far the most abundant of the birds of this genus; its sprightly and melodious song is heard almost constantly during the summer.

*Icteria viridis, *Gmel.*
A few only are to be found in the tangled thickets during the summer months.

MERULIDÆ, (10 species.)

Mimus polyglottus, *Lath.*
Occasionally a straggler of this charming songster finds its way as far north as Wisconsin. I saw one between Racine and Kenosha July 16th, 1851, and a second near the State line on Rock river, July 26th, 1846.

*M[illegible] [illegible], *Linn.*

*Turdus migratorius, _Linn._
Abundant. Arrives middle of March, leaves first of November.

*Turdus mustelinus, _Gmel._
Common. Wishing to add to my collection a pair of this species, together with their nest and eggs, I shot the female, and was about to secure the nest, when the male, which had been watching me in the vicinity, commenced singing; and as I approached the spot he glided off still further from the nest, all the time pouring fourth the most mellow and plaintive strains I ever before heard uttered by this most melodious of songsters. After I had been enticed to a considerable distance, he returned to the vicinity of the nest; three or four times I followed this bird in the same manner before I suceeded in shooting him. This movement, and the effect of his tender song, so far enlisted my sympathies that I regretted exceedingly my cruelty in destroying his nest and mate. It is common for birds to resort to various stratagems for the purpose of attracting intruders from their nests, but this is the only instance with which I am acquainted where the charms of their music were employed for this object.

Turdus solitarius, _Wilson._ (?)
Numerous during spring and fall.
Is our bird, which retires further north to breed, the same that nests in the Southern States?

*Turdus wilsonii, _Bonap._
Common. Nests 1st of June.

*Seiurus noveboracensis, _Gmel._
Abundant in spring and fall. A few nest in dark and gloomy swamps. Their song is sweet, a mixture between the Warbler's merry ditty and the more mellow strains of the Thrush.

*Seiurus aurocapillus, _Wilson._
Common.

Anthus ludovicianus, _Lichst._
Abundant on the prairies in spring and fall.

SYLVIADÆ, (35 species.)

Sylvicola coronata, _Wilson._
Numerous. The first warbler that arrives in the spring—1st of April; they all go north by the third of May; in the fall they linger with us until November

Sylvicola petechia, _Lath._
Very numerous, especially in the fall, when thousands may be seen any day on the prairies,—running along the fences,—flitting from stalk to stalk in the corn-field,—all the time wagging their tails in the manner of the Titlark and Aquatic-Thrush, which they closely resemble in habits.

*Sylvicola æstiva, _Gmel._
Abundant.

Sylvicola maculosa, _Lath._
Numerous from the 5th to 27th of May.

Sylvicola flavicollis, _Wilson._
I shot a single individual of this species near Racine, June 20th, 1848.

*Sylvicola virens, _Lath._
Common. A few nest with us. The old males arrive 5th of May, young males and females about the 10th of the same month.

*Sylvicola Blackburniæ, _Lath._
One of the most numerous warblers from the 5th to the 20th of May. The old males precede the females about a week. The first arrivals of this species, as well as all others, are in the finest plumage. A few nest with us.

*SYLVICOLA ICTEROCEPHALA, *Lath.*

This beautiful little warbler is extremely abundant. It prefers localities with a dense under-brush, especially hazel, thinly covered with trees. In such situations it is not uncommon to hear the songs of a dozen males at the same time. They construct a nest of blades of grass and thin strips of bark intermingled with caterpillars' web, fixed in a low bush, (generally hazel,) seldom more than two or three feet from the ground; the eggs, 4 or 5 in number, closely resemble those of the *S. æstiva*. But one brood is raised in a season—nest from the 10th to 15th of June. If the nest be approached when the female is in it, she will drop to the ground and hobble along with one wing dragging, uttering at the same time a *peeping* note of distress.

I once caught a young bird of this species that had just left the nest; the parent birds, in their alarm for its safety, approached so near to me that I caught the male in my hand. I let them both go, upon which, the joy of the old bird appeared to be greater for the escape of the young fledgling than for his own release.

SYLVICOLA CASTANEA, *Wilson.*

Arrives in large numbers about the 10th of May; all gone north by the 25th.

SYLVICOLA STRIATA, *Lath.*

Equally numerous with the preceding; the two species arrive and depart in company.

*SYLVICOLA PINUS, *Lath.*

Not a numerous species with us. Nest in the northern pine forests.

SYLVICOLA DISCOLOR, *Vieill.*

A few are occasionally seen about the middle of May. Rare in Wisconsin.

*SYLVICOLA AMERICANA, *Lath.*

Common. The beautiful pensile nest of this bird has never, to my knowledge, been described. Audubon undoubtedly erred in attributing the nest described by him to this species. That presented by me to the Collection of the Academy is formed by interlacing and sewing together, with a few blades of grass, the pendant lichen (Usnea barbata) which grew upon a dead horizontal branch of an oak, fifty or sixty feet from the ground. A hole, just large enough for the bird to enter, is left in the angle immediately under the branch, which forms a complete roof for the nest; it is finished with a slight lining of hair. The whole forms a beautiful basket of moss, which is so admirably adapted to the purpose intended, so effectually concealed, so light and airy, that it would be almost impossible to suggest an improvement, and is certainly one of the most interesting specimens of ornithological architecture. The eggs, four or five in number, are white, with a band of light brown spots near the greater end; they measure 5 by 7½ lines in diameter. The young leave the nest about the first week in July.

SYLVICOLA CANADENSIS, *Linn.*

Abundant from the 5th to 25th of May, and again from the 1st to 20th of October.

SYLVICOLA FORMOSA, *Bonap.*

Rare. Shot one near Racine, May 10, 1851.

*SYLVICOLA CÆRULEA, *Wilson.*

Not common. A few nest with us.

SYLVICOLA MARITIMA, *Wilson.*

By no means a rare bird during the month of May. It frequents the vicinity of streams and swamps that abound with tall willows, in the tops of which this interesting warbler is commonly seen flitting about, busily searching for insects and their larvæ. It is probable that a few nest in this vicinity.

*TRICHAS MARYLANDICA, *Wilson.*

Common.

Trichas agilis, Wilson.
Not uncommon. I shot a pair on the 29th of May; they had mated, and were about to nest.

Trichas Philadelphia, Wilson.
Rarely seen. Shot one May 10, 1851.

*Vermivora pennsylvanica, Swain.
A few nest in this section. Rare.

Vermivora chrysoptera, Linn.
Not uncommon for a few days in May. Go north.

Vermivora rubricapilla, Wilson.
Common for two weeks in May on their passage north: they return in October, at which time the male is without the chestnut crown.

*Vermivora celata, Say.
Not an uncommon species. Frequent the most secluded swamps, where they nest.

Vermivora peregrina, Wilson.
Some seasons, about the middle of May, this plain bird is met with in great abundance. This was particularly the case May 14, 15 and 16, 1849, when I could have procured any desired number; they literally thronged on the tops of the bush oaks in an adjoining grove. For the last two years I have not procured a single specimen.

*Mniotilta varia, Vieill.
Common.

Mniotilta borealis, Nutt.?
I have met with specimens that answered to Nuttall's description, yet I am inclined to consider it a variety of the preceding.

In order to give some idea of the abundance and great variety of the warblers which visit us, I append a list shot in the forenoon of May 5th, 1852, by Rev. A. C. Barry and myself:

6	Sylvicola americana,
1	“ pinus,
1	“ striata,
5	“ icterocephala,
4	“ virens,
6	“ Blackburnia,
5	“ maculosa,
1	“ coronata,
1	Sylvicola æstiva,
4	“ canadensis,
1	“ petechia,
4	“ maritima,
1	Setophagia canadensis,
2	Vermivora rubricapilla,
2	Trichas marylandica,
3	Mniotilta varia,
47.	

All, except three, males in unusually fine plumage, the females not having yet arrived.

We could have obtained many more of most of the species, had it been desirable.

*Troglodytes ædon, Vieill.
Common. First appearance 15th of April.

*Troglodytes hyemalis, Vieill.
Common. Nest in abundance on the shores of Lake Superior.

*Troglodytes brevirostris, Nutt.
A few nest in the vicinity of Racine. Not abundant.

*Troglodytes palustris, Wilson.
Abundant on all our reedy flats.

Troglodytes ludovicianus, *Bonap.*

I met a single wren of this species, July 5th, 1852. Undoubtedly nests sparingly in the southern part of the State. Rare.

Regulus calendula, *Linn.*

Abundant spring and fall.

Regulus satrapa, *Licht.*

Abundant. Arrives 1st of April, and remains until May 10th.

Sialia Wilsonii, *Swains.*

The first arrival of this harbinger of spring at Racine, was—

In 1846, . .	March 25th.
" 1847, . .	" 20th.
" 1848, . .	" 17th.
" 1849, . .	" 11th.
" 1850, . .	" 21st.
" 1851, . .	" 15th.
" 1852, . .	" 12th.

(To be continued.)

The Committee on Dr. Heermann's "Catalogue of the Oological Collection in the Academy of Natural Sciences of Philadelphia," reported in favor of publication in the Proceedings. (☞ See end of this number.)

The Committee on Lieut. Maury's communication, containing his observations on atmospheric pressure, reported as follows:

Lieut. M. F. Maury, through Dr. Le Conte, the Corresponding Secretary, presented an engraved diagram, representing a "vertical section of the basin of the Atlantic," about the parallels of 39° and 40° north latitude, the data for which drawing are furnished by the deep sea soundings, taken by officers of the U. S. Navy, in obedience to an order from the Navy Department. Lieut. Maury says, "These data are not very abundant, but such as they are they give a proximate idea as to the submarine depression."

The diagram exhibits a striking contrast between the profile of the earth's crust above and below the sea level.

The same plate represents a vertical section across the continent of South America from Lima, on the Pacific, to the mouth of the Amazon under the equator, on the Atlantic.

The object of this part of the engraving is to illustrate certain anomalies in the pressure of the atmosphere, as inferred from the experiments of Lieut. Herndon, U. S. Navy, on the boiling point of water, during his recent journey across that section of the continent. The following extract from a table shows the boiling points at several places on the route, and their elevations above the sea respectively:

Heights of Places determined by Lieut. Herndon, *U. S. N.*

Names of Places.	Distance in Statute Miles from Lima.	Boiling Point.	Heights above the level of the sea.
Brought forward	352		
La Cueva	29	206·5	2595 feet.
Lingo Maria . . .	10	207·8	1923 "
Land Travel . .	382		
Focache	174	209.1	1253 "
Sion	58	209·7	944 "
Lupuna	58	210·	791 "
Chasuta	87	210·5	586 "
Santa Cruz	220	211·2	177 "
Nanta	353	211·3	126 "
Petras	197	211·1	228 "
Egas (904)	707	208·2	1715 "
River Bank	131	208·4	1611 "
"	60	208·5	1569 "
"	168	208·6	1507 "
"	50	208·8	1406 "
Barra	14	209.3	1159 "
Mouth of the Maderia .	104	209·8	883 "
Villa Nova . . .	209	210·3	628 "
Santarem	220	210·5	535 "
Pará	759	211·5	25 "
Sea . . .	93		
Direct water travel . . .	3652		

A dotted line on the diagram represents Lieut. Herndon's track above the level of the sea, according to the above experiments. "By this track it will be perceived," says Lieut. Maury, "that after ascending the Andes, and coming down the Amazon to a considerable distance, he ascended or went up hill. Now we know that this was not the case, because he was all the time drifting down the stream in a canoe. To reconcile this apparent paradox between the inclination of this slope of the continent, as shown on the one hand by the running water of the rivers, and on the other by the pressure of the air, it is necessary to suppose, that when he boiled his water at the eastern base of the Andes, he was in fact under a bank of atmosphere, and that the pressure under this bank was so great as to force the boiling point up very nearly to the sea level.

"Let us now proceed to account as best we may, for this bank, or increased atmospheric pressure.

"These experiments were made in south latitude, and in the trade wind region of that hemisphere. These winds strike nearly perpendicularly against the Andes, the tops of which range extend in many places nearly, if not quite as high, as do the trade winds themselves. Now, then, what is the effect of such an obstruction as the Andes afford to the passage of the south east trade winds? If we may judge by the effect of similar obstructions to running water, we have no hesitation in saying that the effect is to bank up.

"Pot Rock and other obstructions to the rapid current of Hurlgate—taking small things to represent great—may serve us with an illustration that will assist me in making myself clear. Any one who witnessed the water running over that rock, could not fail to be struck with the fact, and the extent to which the water was piled up, not *over* the rock, but *up stream* from it; not only was there this banking up of the water before it reached the rock, but there was also a depression *above*—that is, up stream from this bank of water on the one hand, and below or down stream from the rock on the other.

"In like manner it appears to me, that Herndon's observations have revealed the fact that there is, at times at least, in the intertropical atmosphere of South America, an air-cast mould of the Andes.

"It is remarkable how clearly these observations indicate a piling up of the atmosphere to the windward of the Andes, and a depression in the general atmospherical level to the windward again of this air bank. If this conjecture afford the real explanation of the phenomena, we should look on the lea side of the Andes for a low barometer, or a depression in the atmosphere, corresponding to the hollow in the water below Pot Rock.

"The mean height of the Bar in Lima, as far as I have been able to ascertain it, indicates that such a depression is felt there.

"If subsequent observations should confirm these indications and establish them as realities, we should then be put in possession of important physical facts. We should be led to infer that the height of mountains, and of mountain slopes above the sea level, as determined by the barometer, would depend somewhat upon *which way the wind blows*, and the only safe rule of admeasurement in such cases, would be to establish a standard barometer at the foot of the mountains, both in the windward and the lea side.

"Another of the physical facts besides that of establishing the direction of the wind, as a function in barometric determination is, that if this increased pressure of the atmosphere at the eastern foot of the Andes be caused by the obstruction which that range of mountains affords to the passage of the trade winds, then do those mountains in the trade wind region become a natural anamometer, which will give us in terms of the barometer an expression for the whole amount of force employed in giving motion and velocity to the trade winds of the earth."

ELECTION.

J. Dickinson Logan, M. D., and Mr. Frederick Schafhirt, of Philadelphia, and Mr. P. W. Sheafer, of Pottsville, were elected *Members* of the Academy, and

Dr. H. Schaum, of Berlin, Dr. G. Hartlaub, of Bremen, and Prof. A. Wagner, of Munich, were elected Correspondents.

April 12th.

Vice-President BRIDGES in the Chair.

A communication was read from the Historical Society of Pennsylvania, dated March 17th, 1853, acknowledging the receipt of the last number of the Journal, and of a collection of Indian antiquities presented by the Academy.

Mr. Conrad presented a paper for publication in the Journal, describing new species of Unio; which was referred to Dr. Ruschenberger, Dr Wilson and Dr. Zantzinger.

A second paper from Mr. Conrad was also presented, intended for publication in the Proceedings, entitled, "Monograph of the genus Fulgur." Referred to same Committee.

April 19th.

Vice-President Bridges in the Chair.

A letter was read from the Secretary of the New York Lyceum of Natural History, dated April 12th, 1853, acknowledging the receipt of the Proceedings of the Academy, vol. 6, No. 7.

Dr. Wetherill exhibited an improved apparatus for the analysis of the Carbonates, on the plan of Wills.

Dr. Meigs, referring to his former communication to the Academy upon the structure of the uterus of the Porpoise, remarked that since that time, until recently, he had been unable to obtain a second specimen. On last Saturday he received from Capt. Bennett, of the steamer Osprey, a fine specimen, about six feet long, of Delphinus delphis, which he had dissected. The uterus, in this specimen, was not, as in the former, gravid; the cervix was more fusiform, but still the peculiar double arrangement, noticed in the first specimen, was well marked. Dr. Meigs remarked that it was an interesting question, whether the cervix uteri of all plunging animals is similarly formed, and referred to the suggestion in his former paper, of the use of the double cervix in resisting the pressure of the sea at great depths, which pressure upon the body and fundus would tend to produce abortion.

April 26th.

Mr. Ord, President, in the Chair.

The Committee on Mr. Conrad's paper, describing new species of Unio, reported in favor of publication in the Journal.

The Committee on Mr. Conrad's "Monograph of the genus Fulgur," reported in favor of publication in the Proceedings.

Monograph of the genus Fulgur.

By T. A. Conrad.

FULGUR *Montfort*:

Pyrula *Lam.*

Shell pyriform; spire short; varices none; body whorl very large; aperture large, oval, extended towards the base into an elongate-conic, open canal, entire at base: umbilicus none; epidermis deciduous; labium concave, with a single fold or oblique groove near the origin of the canal, and a slight calcareous deposition above; labrum simple, many of the species having elevated striæ which do not revolve far within the shell, nor do they reach the edge of the labrum, but leave a smooth border; operculum horny.

Remarks.—The striæ on the interior of the labrum are given by Say and Montfort in the generic character of *Fulgur*; but Say does not allude to them in his description of *F. pyruloides*, which, I believe, never has them. This is the case with a few other species, agreeing in every other respect, generically, with the undoubted species.

This genus is usually confounded with *Melongena*, *Rapana* and others, but the group is very distinct, and the animal widely different from its congeners, though it does not appear to have been figured or described. Living specimens are abundant on the coast of New Jersey, and could easily be obtained, whilst an anatomical description of the animal is still a desideratum. The manner in which the young are excluded in spiral series of cells, was noticed and figured by Lister. This peculiarity is common to *F. canaliculatum* and *F. perversum*, and is doubtless persistent throughout the group.

The earliest fossil that I can recognize among American species is *Fulgur trabeatum, Con.*, from the Older Eocene of Alabama. The Lower Tertiary species are comparatively small, whilst in the Miocene and later deposits they are far larger and more numerous, and very characteristic of those Tertiary divisions.

Fossil Species.

EOCENE.

1. FULGUR TRABEATUM. Subfusiform, thin, ventricose, with elevated revolving striæ at base and more obscure ones above; body whorl, with two distinct series of compressed tubercles: the humoral series continued on the spire; whorls angular; beak produced, slightly sinuous; aperture patulous.

Fusus trabeatus, Con. Foss. Shells of Tert. Form, 2d ed. p. 53, t. 18, fig. 1. August, 1833. 1st ed. p. 29, No 3..

F. bicarinatus, Lea. Cont. p. 146, pl. v., fig. 147. Oct., 1833.

Locality.—Claiborne. Ala. Older Eocene.

2. F. SPINIGERUM.

Fusus spiniger, Con. Proceed. A. N. S. 1847, Journ. A. N. S. vol. 1, 2d series, p. 117, pl. xi., fig. 32.

Locality.—Vicksburg, Miss. Newer Eocene.

3. F. NODULATUM. Pyriform, thick, with strong rugose, revolving lines, with a very fine intermediate line between most of the large striæ; on the inferior part of the body whorl is a space without lines, below which the whorl has a slightly concave slope towards the beak; angle tuberculated, the series continued on the spire near the suture; in some specimens the tubercles margin both sides of the suture; spire short; sides of volutions concave; labrum with rather distant, prominent, acute lines within; beak straight.

F. nodulatum, Con. Journ. A. N. S., vol. 1, 2d series, p. 207 and vol. ii. p. 41, pl. 1, fig. 6, 7.

Locality.—Vicksburg, Miss. Newer Eocene.

MIOCENE.

4. F. CORONATUM. Fusiform, ventricose, with fine, closely-arranged, revolving, wrinkled lines; spire short; whorls flattened above, and having elevated, compressed tubercles or short spires on the angle, which is somewhat carinated; suture channelled and margined by an obtuse carinated line.

F. coronatus, Con. Miocene Shells, cover of No. 2, 1839.

F. canaliculatus, Lyell (not *Lin.*) Manual, p. 172, fig. 151.

Locality.—St. Mary's Co., Maryland.

This fine species is very distinct from the recent *canaliculatum*, being less ventricose and having prominent tubercles in all stages of growth. It is abundant. The largest specimen measures six inches in length.

5. F. CANALICULATUM. This recent species has been found in a fossil state, but is rare. It agrees perfectly in form and character with the living shell.

Localities.—St. Mary's river, Md. Natural Well, Duplin Co., N. C.

6. F. RUGOSUM. Pyriform, with numerous, rather coarse revolving lines, disposed to alternate in size, and very distinct lines of growth; whorls scalariform, with a tuberculated carina, the margin of which presents a waved outline, the tubercles being obtuse; spire prominent, profoundly channelled at the suture; margin of the channel carinated in young shells. Length 3 inches.

F. rugosus, Con. Proceed. A. N. S. vol. 1, p. 307.

Compared with *F. coronatum*, this species, when adult, is comparatively shorter and more inflated, with a shorter spire, much coarser revolving lines, which, with the more numerous, more obtuse tubercles, give the shell a very different appearance from *F. coronatum*.

Locality.—St. Mary's river, Maryland.

7. F. TUBERCULATUM. Fusiform, with revolving striæ; spire elevated; angle of the whorl carinated and crowned with prominent tubercles; body whorl ventricose.

F. tuberculatus, Con. Miocene Shells, cover of No. 2, 1839.
Locality.—Patuxent river, St. Mary's Co. Maryland.
Allied to *F. fusiformis*, but is more ventricose, proportionally shorter. It may readily be distinguished by the carina of the volutions, which is very strongly marked towards the apex.

8. FULGUR CARICA. (*Pyrula carica* Lam.)
Locality.—North Carolina. Prof. E. Mitchell.
A large specimen of the variety with short spines, is in the collection of the Academy of Natural Sciences.

9. F. FUSIFORME. Fusiform, with revolving striæ; obsolete, except on the inferior half of the body whorl, where they are prominent, wrinkled and alternated in size; spire elevated; whorls with obtuse little prominent tubercles on the angle which is situated near the suture and is obtuse.
F. fusiformis, Con. Miocene Shells, cover of No. 2, 1839.
Locality.—Patuxent river, St. Mary's Co., Maryland.

10. F. MAXIMUM. Pyriform, ventricose, moderately thick, with coarse distant subimbricated lines of growth; spire short, with revolving striæ; whorls concave above, rounded inferiorly; beak long and sinuous; columella very concave; aperture patulous. Length 7½ inches.
F. maximus, Con., Miocene Shells, cover of No. 2, 1839.
Locality. Yorktown, Virginia.
There is a variety of this shell thick and ponderous; angle of penultimate and body whorls with short distant arched or foliated spines, each of which is connected with a longitudinal line or fold; lines most prominent towards the base where the beak is somewhat tumid.
This is the largest fossil species known to me, and resembles *F. aruanum*, but the rounded volutions of the spire is a striking point of difference.

11. F. INCILE. Fusiform, with distant coarse, prominent and fine impressed revolving lines; body whorl profoundly ventricose, shoulder rounded, summit with a broad concave furrow margined by a profound carinated line, between which and the suture is a wide profound channel; spire conical, elevated, whorls ventricose; aperture dilated. Length 6½ inches.
F. incilis, Con., Sillim. Journ. vol. xxiii. p. 343.
Locality. Yorktown, Virginia.
This large species distantly resembles *F. canaliculatum*. It is much thicker and more ponderous, with a more elevated spire, and with rounded volutions destitute of tubercles.

12. F. CONTRARIUM. Pyriform, sinistral, with wrinkled revolving lines, obsolete on the middle of the large whorl; shoulder obtusely angulated, without tubercles; summit of the whorls concave; whorls of the spire angulated in the middle, and slightly tuberculated on the angle; beak very long, sinuous; labrum with distant prominent lines within.
F. contrarius, Con., Silliman's Journ. vol. xxxix. p. 387.
Locality. Natural Well, Duplin Co., N. C.
A much smaller species than *F. perversum*, differing in its want of tubercles on the shoulder when adult, (for young shells have small tubercles, not compressed as in the kindred species.) The shell is proportionally thicker, the columella more concave and the angle more prominent.

13. F. EXCAVATUM. Pyriform, with revolving lines, very prominent on the inferior half of the large whorl; shoulder with a wide concave depression; spire widely and profoundly channelled, the whorls bicarinated and slightly tuberculated on the carinæ.
F. excavatus, Con., Sillim. Journ. xxxix. p. 387.
Locality. Natural Well, Duplin Co. N. C.

14. F. OREGONENSE. Fusiform with unequal prominent revolving lines, a few of which are considerably larger than the others, on the upper portion of the body whorl: they are also coarser towards the base, and attenuated in size;

ulder with a series of tubercles; one of the larger lines on the body whorl
newhat tuberculated; a prominent line margins the suture; spire conical, the
utions reticulated and tuberculated.
Fusus Oregonensis, Con., Sillim. Journ. vol. v. p. 433, fig. 13.
Locality. Columbia river, near Astoria, Oregon. J. K. Townsend.

Recent Species.

F. CARICA, (Murex carica, Gmel.)
Lister, Conch. t. 880.
Martini, iii. t. 67, fig. 744, and t. 69, fig. 756, 757.
Pyrula carica, Lam. Desh. ed. An. sans Vert. ix. p. 505.
Pyrula aruana, Reeve, (not Linn.) Conch. Icon. pl. 5, fig. 16.

This species inhabits the Atlantic coast from Georgia to Massachusetts.
eve, when he published his monograph of Pyrula, in 1847, was unacquainted
h the habitat of this common and long known shell. There is a distinct
iety of this species on the southern coast, with much shorter and thinner
nes, and it is also longer and thinner than the typical form.

F. CANALICULATUM. (*Pyrula*, Lam.)
Buccinum ampullaceum, Lister, Conch. t. 878, fig. 2.
Murex canaliculatus, Linn. Martini, iii. p. 29, t. 67, fig. 742, 743.
Pyrula canaliculata, Reeve, Conch. Icon. pl. 8, fig. 26.
nhabits the coasts of New Jersey, Rhode Island and Massachusetts.

F. PERVERSUM. (*Murex*, Linn.)
Buccinum ampullaceis ad sinistram convolutis, Lister, Conch., t. 907, 908.
Chemnitz, ix. part 1, p. 67, t. 106, fig. 900 to 903.
Pyrula perversa, Lam. Reeve, Conch. Icon. pl. 3, fig. 13.
nhabits the southern coast. In Tampa Bay, Florida, it is abundant, and
ng specimens may be obtained 12 inches in length.

F. PYRUM. (*Bulla pyrum*, Dillwyn, 1817.)
Buccinis ampullaceis tenuibus, Lister, Conch. t. 877.
Martini, iii. p. 27, t. 66, fig. 736, 737.
Bulla ficus, var. *b*. Gmel. Dillwyn's Catalogue, p. 485.
Pyrula spirata, Lam., 1822, An. sans Vert. vii. p. 142.
Fulgur pyruloides, Say, 1822, Amer. Conch. pl. 19.
Pyrula spirata, Reeve, Conch. Icon. pl. 8, fig. 27.
ommon on the southern coast of Florida.

F. CANDELABRUM. (*Pyrula*, Lam.)
Kiener, pl. 8, fig. 2.
Kiener and Reeve suggest that this shell is a variety of *Fulgur perversum*. It
s not appear that more than one specimen has been discovered.

F. GIBBOSUM. Pyriform, ventricose, thick, armed with broad prominent
ated thick spines; shoulder carinated; spire short, the four upper whorls
erculated on the upper margin of the suture; columella sinuous; middle of
beak profoundly tumid, on which elevation are robust alternated wrinkled
æ; labrum channelled below, corresponding to the external hump; margin of
rum very sinuous towards the base, the interior with slightly raised lines,
l of a yellowish orange color; color white, with long purplish lines and a
ad indistinct revolving white band on the body whorl.
Pyrula perversa, var. Kiener, pl. 9, fig. 2.

The revolving lines are obsolete on the upper part of the body whorl, and
re are revolving wrinkled slightly raised lines on the spire.
A specimen of this species is in the collection of the Academy, and Kiener's
re has a close resemblance to it. It is not known to inhabit the coast of the
ited States, and is probably from Campeachy Bay.
his shell is not a variety of *F. perversum*, as Kiener supposes, but if not a
inct species, must be a sinistral variety of *F. carica*. That shell, however,
ommon on the coast of the United States, but a sinistral specimen is there
nown.

Notes on Shells.

By T. A. Conrad.

Dreissena, *Van Beneden.*

There is but one species of this genus known to inhabit the waters of North America. It is a small shell, very abundant in Virginia, attached by its byssus to the *Ostrea virginiana.* I described it in the Journal of the Academy of Natural Sciences, vol. vi. p. 263, pl. 11, fig. 13, under the name of *Mytilus leucophæatus.*

Artemis, *Poli.*

There are three species of this genus on the Atlantic coast of the United States, one of which occurs fossil in the Miocene of Virginia, (*A. concentrica.*) As they do not appear to be correctly named in Reeve's monograph, the following corrections are submitted:

1. A. concentrica.
   A. acetabulum, Con., Miocene Shells, p. 29, pl. 16, fig. 1.
   Gualt. t. 76, fig. F.
   Favanne, t. 48, fig. 3.
   Venus concentrica, Born. t. 5, fig. 5.
Inhabits the coast of Florida.

2. A. elegans, *Con.*, Miocene Shells, p. 67, pl. 38, fig. 1.
   Encyc. Method. t. 279, fig. 2.
   Lister, t. 288.
   Chemn. vii. pl. 37, fig. 392.
   A. concentrica, Reeve, (not Born) Conch. Icon. pl. 11, fig. 8.
Inhabits the southern coast of Florida. Common in Tampa Bay. Fossil in Post-Pliocene on the Neuse river, North Carolina.

3. A. discus, Reeve, Conch. Icon. pl. 11, fig. 9.
   Cytherea concentrica, Chenu, (not Born,) pl. 10, fig. 5.
Inhabits the coasts of the Middle and Southern States. It has been found as far north as Cape May, and is common in Tampa Bay, Florida.

Fossil Species.

A. lenticularis.
Cytherea lenticularis, Rodgers, Trans. Amer. Philos. Soc., 2d series, vi., p. 372, pl. 28, fig. 1.
Locality. Eastern Virginia, in the Eocene.

A. excavata.
Cytherea excavata, Morton, Cretaceous Group of the United States, p. 67, pl. 5, fig. 1.
Locality. Arneytown, N. J., in cretaceous green sand.

ACANTHINA, *Fischer.*

Monoceros, *Lam.*

This genus, very nearly connected with *Purpura*, does not abound in species either recent or fossil. It makes its first appearance in the Eocene, and I have not met with it anywhere in this country, except in the older Eocene of Alabama. Three species referred to Buccinum by Deshayes in his Coq. Foss. viz. *obtusum*, *semicostatum* and *patulum*, must either be arranged in the present genus or in Sowerby's genus *Gastridium*, which does not materially differ from *Acanthina*, the only variation consisting in its small or obsolete tooth. In the Claiborne species the tooth, though small, is never obsolete in perfect specimens.

Sub-Genus Gastridium, *Sowerby.*

A. vetusta, *Con.*
Monoceros vetustus, Con., Foss. Shells, p. 37, pl. 15, fig. 3.
M. pyruloides, Lea, Contributions, p. 161, pl. 5, fig. 166.
M. fusiformis, ib. ib. p. 162, pl. 5, fig. 167.

CORNULINA, *Con.*

Shell short-fusiform, spinous; columella rounded; labrum with three teeth, two of them very small.

This genus embraces three Eocene species, which differ from MONOCEROS in having a rounded columella and three teeth on the labrum.

1. C. MINAX.

Murex minax, Brander, Desh. Coq. Foss. pl. 77, fig. 1, 2.

2. C. ARMIGERA, *Con.*

Short-fusiform, ventricose, ponderous, with two remote series of distant, prominent thick spines, the one on the shoulder, the other below, commencing near the columella and rather below the middle of the large volution; base carinated; labrum with a short conical tooth and two small teeth situated below it.

Monoceros armigerus, Con., Foss. Shells of Tert. Form. p. 37, pl. 15, fig. 1, Oct. 1833; Bronn. Index Pal. p. 471.

Melongena armigera, Con., Foss. Shells, 1st ed. Aug. 1833.

Fusus Taitii, Lea, Cont. to Geol. p. 152, pl. 5, fig. 159, Dec. 1833.

Locality. Claiborne, Alabama. Not uncommon.

The labrum of this shell is generally broken, but when entire, it shows two very small teeth in addition to the one situated at the termination of the revolving groove.

3. C. CRASSICORNUTA, *Con.*

Melongena crassicornuta, Con., Jour. Acad. Nat. Sc. 2d series, pl. 11, fig. 31.

The labrum of the only specimen found is broken, but the shell so nearly resembles *C. minax*, that it is confidently arranged in the same genus.

On motion of Dr. Elwyn, it was *Resolved*, that the Secretary be directed to call a special meeting of the Academy, on Tuesday evening next, for the purpose of considering the expediency of erecting a new Hall.

Mr. Vaux presented the following Report:

The Committee appointed to procure funds for the purchase of the Anatomical collection belonging to the estate of the late Dr. Samuel George Morton, and now in the Museum of the Academy, report that hey have procured the sum of $4000, which is the price agreed for, nd they at the same time submit the following list of names, being hose of gentlemen, to whose liberality the Academy is indebted for the advantage of possessing the collection in question in its own right.

(Signed) WM. S. VAUX,
CHARLES D. MEIGS,
JOHN COOKE.

Subscribers to Dr. Morton's Anatomical Collection.

Charles Henry Fisher, Thomas Biddle, Henry J. Williams, Charles D. Meigs, Thomas T. Lea, John Farnum, John A. Brown, William Welsh, Richard Price, Morris L. Hallowell, Joseph D. Brown, William Platt, Joseph Swift, Singleton A. Mercer, A. J. Lewis, George W. Carpenter, George B. Wood, J. Francis Fisher, David S. Brown, John B. Meyers, Lewis R. Ashhurst, Caleb Cope, Richard D. Wood, Samuel V. Merrick, James Dundas, J. Pemberton Hutchinson, Henry Pepper, John Cooke, John Lambert, Robert Pearsall, Joseph S. Lovering,

J. G. Fell, Caspar W. Pennock, John Grigg, Joseph Jeanes, Thomas P. Remington, John Price Wetherill, Henry Seybert, (each of the above $100.) Thomas McEwen, Robert Swift, Jacob G. Morris, Wm. S. Vaux, (each $50.)

On motion, the Committee was authorized to receive the amount subscribed, and to consummate the purchase.

ELECTION.

Prof. John C. Cresson, Wm. Byrd Page, M. D., Edmund Lang, M. D., Wm. Hembel Taggart, M. D., all of Philadelphia, and Dr. Charles C. Benton, of Antwerp, N. Y., were elected *Members* of the Academy.

May 3d, 1853.

Mr. Ord, President, in the Chair.

Letters were read—

From H. W. Ravenel, dated Aiken, S. C., April 18, 1853, transmitting a copy of his recent work entitled "Fungi Exsiccati Caroliniani," announced this evening.

From the American Philosophical Society, dated April 20, 1853; from the Secretary of the Trustees of the New York State Library, dated Albany, April 4th, 1853; from the Smithsonian Institution; and from the Royal Academy of Sciences of Vienna, dated 7th Oct., 1852, severally acknowledging the receipt of the Proceedings.

From the Secretary of the Royal Imperial Geological Institution at Vienna, dated 2d Jan., 1853, transmitting the volumes of its Transactions announced this evening.

From Mr. P. W. Sheafer, dated Pottsville, Pa., April 21, 1853, and from Prof. John C. Cresson, dated April 28, 1853, severally acknowledging the receipt of their notices of election as Members of the Academy.

Dr. Wetherill gave a verbal statement of the results of an analysis, by himself, of Fusel Oil, from Indian Corn. He had found, among its other constituents, Caprylic acid.

Immediately upon the adjournment of the above meeting, a Special Meeting of the Society was held, in pursuance of a Resolution adopted April 26, 1853.

Vice-President Bridges in the Chair.

The object of the meeting being to consider the expediency of erecting a new Hall, a discussion took place among the Members, which resulted in the unanimous adoption of the following resolution, offered by Dr. Rand:

Resolved, That it is inexpedient for the Academy to take any steps towards changing its location at the present time.

Also *Resolved*, That the Building Committee be requested to obtain the professional opinion of the Counsel of the Academy upon the proposed plan for the enlargement of the Hall.

May 10th.

Vice-President Bridges in the Chair.

Dr. Le Conte presented the following papers for publication in the Proceedings: 1, "Synopsis of the Meloides of the United States;" 2, "Synopsis of the Endomychidæ of the United States;" and 3, "Synopsis of the Atopidæ, Rhipiceridæ and Cyphonidæ of the United States," all of which were referred to the following Committee: Prof. Haldeman, Dr. Ruschenberger and Dr. Zantzinger.

Dr. Ruschenberger stated that he had received a letter from Lieut.

Maury, enclosing one from Signor Juan Espinoza, dated Lima, 10th March, 1853, addressed to J. Randolph Clay, Esq., U. S. Chargé at Lima, containing some observations on Aerolites and Earthquakes.

Sig. Espinoza stated that he had, on several occasions, observed the phenomenon of the detachment of the armature of a suspended magnet just before an earthquake.

The following resolutions were unanimously adopted:

Resolved, That the thanks of the Academy of Natural Sciences of Philadelphia be presented to Charles Henry Fisher, Esq., and Thomas Biddle, Esq., for the valuable aid rendered by them to the Committee appointed by the Society to obtain subscriptions for the purchase of the Anatomical Collection of the late Dr. Samuel George Morton.

Resolved, That the thanks of the Society be presented to Mr. Wm. S. Vaux, Dr. Charles D. Meigs and Mr. John Cooke, Committee appointed to procure the subscription for the purchase of Dr. Morton's Anatomical Collection.

May 24th.

Vice-President **Bridges** in the Chair.

A letter was read from the Royal Academy of Sciences of Brussels, dated 16th June, 1852, acknowledging the receipt of the Journal of the Academy, vol. 2, part 2, new series.

Also a letter from the Academy of Sciences of Wurtemburg, dated Stuttgart, March 8th, 1853, acknowledging the receipt of the Proceedings for 1850 and 1851, and Nos. 1 and 2 of vol. 6th.

On motion of Dr. Leidy, it was

Resolved, That the Secretary be instructed to invite the Conventions, General Assemblies and other respectable Bodies, now in session in this city, to visit the Museum on specified afternoons.

May 31st.

Vice-President **Bridges** in the Chair.

Prof. Alphonse De Candolle, of Geneva, was elected a *Correspondent*, and the following were elected *Members* of the Academy:

Messrs. Frederick Graff, Edmund Draper, Wm. G. E. Agnew, Dr. E. B. Gardette, Messrs. Chas. Henry Fisher, Thomas T. Lea, Thos. Biddle, John Farnum, John A. Brown, William Welsh, J. Francis Fisher, David S. Brown, Lewis R. Ashhurst, John B. Meyers, Richard D. Wood, Samuel V. Merrick, Henry Pepper, J. Pemberton Hutchinson, Richard Price, Morris L. Hallowell, Joseph D. Brown, William Platt, Joseph Swift, Singleton A. Mercer, A. J. Lewis, John Grigg, Joseph Jeanes, and Thomas P. Remington, all of Philadelphia.

June 7th.

Vice-President BRIDGES in the Chair.

Letters were read—

From the Royal Academy of Sciences of Naples, dated 25th August, 1852, accompanying donations of its Transactions, &c., announced this evening.

From Sig. Achille Costa, dated Naples, 20th Nov., 1852, transmitting the copies of his works announced this evening.

A paper by Prof. Haldeman, describing new species of Insects, with observations on described species, was presented, and referred to the following Committee: Dr. Le Conte, Dr. Leidy and Dr. Ruschenberger.

A paper was also presented from Mr. Chas. Girard, of Washington, entitled "Descriptions of new Nemerteans and Planarians from the Coast of the Carolinas." Referred to the same Committee.

Mr. Cassin presented a continuation of Dr. P. R. Hoy's paper on the Ornithology of Wisconsin, which was referred to the Committee on the previous portions of the paper.

June 14th.

Vice-President BRIDGES in the Chair.

Letters were read—

From Dr. G. Hartlaub, dated Bremen, 14th May, 1853, acknowledging the receipt of his notice of election as a Correspondent.

From J. W. Dawson, Esq., of Pictou, Nova Scotia, dated April 23d, 1853, accompanying the specimens of coal fossils from that country, presented this evening.

From the Corresponding Secretary of the American Academy of Arts and Sciences, dated Boston, June 7th, 1853, transmitting part 1, vol. 5, of the Memoirs of that Institution, and requesting certain Nos. of the Proceedings of this Society.

From Dr. T. R. Beck, Secretary of the Trustees of the New York State Library, dated Albany, June 9th, 1853, acknowledging the receipt of the last No. of the Proceedings.

Dr. Leidy read an interesting letter from Mr. Isaac Lea, dated Vienna, May, 1853, and enclosing a communication, designed for publication in the Proceedings, entitled, "Notice of the Mya nodulosa, Wood, by Isaac Lea." The latter was referred to Dr. Leidy, Dr. Pickering and Major Le Conte.

June 21st.

Vice-President BRIDGES in the Chair.

Letters were read—

From the Royal Academy of Sciences of Brussels, dated 16th June, 1852, acknowledging the receipt of the Journal, part 2, vol. 2, new series.

From the Wurtemberg Society of Natural Sciences, dated March 8th, 1853, acknowledging the receipt of late Nos. of the Proceedings.

From the American Philosophical Society, dated June 21, 1853, also acknowledging the receipt of the last No. of the Proceedings.

A paper was presented from Prof. Baird and Mr. Chas. Girard, intended for publication in the Proceedings, entitled "Descriptions of some new Fishes from the River Zuni." Referred to Mr. Cassin, Dr. Henderson and Dr. Le Conte.

Mr. Cassin presented a "Catalogue of the Hirundinidæ in the Collection of the Academy of Natural Sciences," intended for publication, which was referred to Dr. Wilson, Dr. Le Conte and Mr. Phillips.

Mr. Cassin presented a second paper for publication in the Proceedings, describing new species of Swallows and Parrots in the Collection of the Academy. Referred to same Committee.

Major Le Conte exhibited a single valve of Dipsas plicatus, in which the shell had been opened, and small images of lead inserted, which the animal had covered with nacre, forming artificial pearls.

Dr. Le Conte made some remarks on the specimens of Scalops in the Collection of the Academy, and pointed out the want of uniformity in the generic characters separating that genus from Talpa.

In many of our species the number of teeth is the same as in Talpa europæa, the only differences being in the size of the first and fourth teeth; the latter of which is much elongated in the European mole, while in ours it is either of the same size or scarcely perceptibly larger than the adjacent teeth.

In Scalops aquaticus alone does the dentition show any decided modification; the teeth are here only 36 in number; their form and situation are already well known, and are described in all systematic works; the anterior upper teeth is enlarged, as in the other American moles, but to a still greater extent. The hind feet are also webbed, almost to the root of the nail, while in the others the toes are separated as in Talpa.

The form of the snout is also mentioned among the generic differences. In Talpa the snout is broad and depressed and the nostrils are terminal. In Scalops aquaticus, the snout is moderately depressed and the nostrils superior. In S. Townsendii and æneus, the snout is much elongated, slender, and the nostrils are superior. In S. Breweri, the snout has the same slender form as in the two last mentioned, but the nostrils are entirely lateral.

In view of the unsatisfactory nature of these differences, Dr. Le Conte believes that it is better to suppress the genus Scalops, and place all the species under Talpa, than still farther to subdivide the group into genera. Talpa may then be divided into three groups:

1. Dentes 44, 4to superiore et 5to inferioribus maiore; rostrum latum depressum, naribus terminalibus; pedes postici non palmati.

To this group belong Talpa europæa and T. cœca, both European; and differing in the size of the incisor teeth, the middle of which are larger than the lateral ones in T. cœca, while all are equal in T. europæa.

There is in the Academy a specimen labelled "Scalops Breweri," which belongs to this division, and by description approaches to Talpa cœca, in the increased size of the middle incisors. In comparison with T. europæa, besides the difference in the incisors, the four small teeth following the long canine-like teeth of the upper jaw, show great differences. In the one under consideration, the three anterior ones are equal and very small, and the fourth is larger and simply compressed, not lobed, though declivous posteriorly. In the lower jaw, the enlarged canine-like 5th tooth is followed by *four* small simple and equal teeth; then follow the ordinary cuspidate teeth, which present no appreciable differences. In color the specimen precisely resembles Talpa europæa; the hair of the tail is, however, entirely black.

Nose to root of tail	4·8 inches.
Tail	·8 "

Locality unknown. For this new species the name T. reposta is proposed.

2. Dentes 44, incisivis mediis superioribus magnis, dente 4to superiore vix elongato: rostrum elongatum, gracile naribus vel lateralibus, vel supernis; pedes postici non palmati.

Of the *seven* teeth following the enlarged incisors of the upper jaw, the three first are pointed, conical, and increase gradually in size; the three next are small, very slightly compressed, and also increase a little in size; the 7th is triangular, moderately large, and has a small antero-internal cusp, which is larger in T. Breweri than in the other species, which seem to differ principally in color. The following table will express the relations:

Nares laterales.	
Cinereo-nigra, cauda longa, valde pilosa	Breweri.
Nares superni, cauda brevi parce pilosa.	
Æneo brunea ungues antici nigri	ænea.*
Concolor, (fusco-nigra) pedibus solis pallidioribus .	Townsendii.
Cinereo-nigra, pedibus pallidis, fronte vittaque inferna albis	tæniata.

The singularly marked specimens referred by Dr. Bachman (Jour. Acad. 8, 58, and Bost. Journ. Nat. Hist. 4, 31,) as varieties of Scalops Townsendii, and afterwards (Quadr. of America, pl. 145,) erroneously figured by Mr. Audubon as the type, seem to present sufficient characters to rank as a distinct species. The third tooth of the upper jaw following the large incisor is more elongated than in the true Talpa Townsendii: the posterior cusps of the 7th and 8th lower teeth, although distinct, are smaller than in T. Townsendii, and there is no distinct internal basal margin connected with the cusp. I have, therefore, separated it as distinct under the name Talpa tæniata.

3. Dentes 36, primo superiore, 2do inferiore magnis, rostrum subdepressum, naribus supernis; pedes postici palmati.

This group contains the typical Scalops aquaticus, and probably also S. latimanus Bachman, (Bost. Journ. 4, 34), which differs by its coarser and slightly curled hair, and larger anterior feet. A specimen in the Academy differs from S. aquaticus in being much larger (equal in size to Talpa Europæa,) and in having much larger anterior feet: the hair is, however, soft and lustrous, as in T. aquatica; the color is uniform yellowish brown at tip, dark cinereous at base; feet and tail pale; the latter is short and naked. This appears to be the yellow mole of Pennant, (Synops. Quadrupeds, p. 312,) described from a specimen without teeth, and referred, on account of its size, to T. europæa. The dentition of our specimen shows no difference worthy of notice. This species should be called Talpa Pennantii.

Unknown in recent times is Talpa cupreata Raf. (Precis des découvertes et travaux Somiologiques, Palerme, 1814, page 14.) The description is as follows:

"Queue le septieme de la longueur, totale brun luisant argenté, a reflets cuivrés et pourprés, gorge légérement roussâtre, museau couleur de chair et nu, pieds concolors.—Obs. De l'Amér. septentrionale."

Probably identical with this species is the black and shining purple mole from Virginia described by Seba, p. 51, plate 32, and the purple species described by Dr. T. W. Harris, in the New England Farmer.

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* *Scalops æneus* Cassin, Proc. Acad. Nat. Sc. 6, 299.

June 28th.

Vice-President Bridges in the Chair.

The Committee to which was referred the following papers by Dr. Le Conte, reported in favor of publication:

Synopsis of the Meloides of the United States.

By John L. Le Conte, M. D.

The species of this family are very numerous; those found in our territory may be divided into the following genera:

A. Ungues non serrati.

Elytra abbreviata, imbricata, unguibus fissis . . Meloe *Lin.*
Elytra non imbricata, unguibus dentatis . . . Cysteodemus *Lec.*
Elytra connata, unguibus fissis . . . . . Henous *Hald.*
Elytris integris non connatis, unguibus fissis:
Tarsi articulo penultimo non emarginato . . . Lytta *Fabr.*
Tarsi articulo penultimo emarginato . . . . Tetraonyx *Latr.*

B. Ungues serrati, appendice instructi.

Maxillæ elongatæ . . . . Nemognatha *Ill.*
Maxillæ breves.
Ungues appendicibus filiformibus.
Antennæ filiformes . . . . . . Zonitis *Fabr.*
Antennæ moniliatæ . . . . . . Horia *Fabr.*
Ungues appendicibus latis obtusis . . . . Cephaloon *Newman.*

Meloe *Lin.*

a. Antennæ maris medio dilatatæ.

1. M. rugipennis, cyaneus, capite grosse punctato, thorace angustiore, latitudine sublongiore basi emarginato, irregulariter grosse punctato, elytris valde intricato-rugosis. Long. ·45—1·05.

Middle States, not rare. The elytra are stouter than in the two next species. The abdomen of the female is black and membranous each side: the middle part is more uniformly chagrined than in the male. Very similar to *M. violaceus*, but less shining, and with much rougher elytra.

2. M. mœrens, niger, vix purpurascens, capite parcius punctato, thorace angustiore subelongato, basi valde emarginato, lateribus sinuato, parce punctato, medio impresso, elytris subtilissime rugosis, punctis parcis minus profundis impressis. Long. ·8.

New York. This is a rare species, of which I possess only females, although from its resemblance in form to the preceding, we may be almost confident that the antennæ of the male are irregular. The abdomen is densely rugous, the rugæ towards the middle are almost longitudinal. The antennæ are longer than the head and thorax, and slender.

3. M. angusticollis, obscure violaceus, capite thoraceque punctis paucis parvis impressis, hoc multo angustiore, elongato, basi emarginato, elytris subtilius intricato-rugosis. Long. ·5—·8.

Say, Journ. Ac. Nat. Sc. 3, 280.

Middle States. The thorax is more than one-half narrower than the head, and is nearly one half longer than wide.

4. M. impressus, obscure nigro-violaceus, capite thoraceque sat dense punctatis, hoc paulo angustiore, latitudine vix longiore, postice gradatim angustato, pone medium subcanaliculato, elytris minus profunde imbricato-rugosis. Long. ·5—·6.

Meloe impressa Kirby, Fauna Bor. Am. 241.
Var.? *Meloe nigra* Kirby, ibid. 241.
Meloe americanus‡ Brandt and Erichson, Nov. Act. Leopold-Car. 16, 118.

Middle States, abundant. Differs from *M. violaceus* in the thorax being shorter, less shining, and more densely punctured. The antennæ are shorter and stouter than in the two preceding species. The rugæ of the elytra are broad, but not deep; the rugæ of the abdomen are fine and irregular. M. nigra *Kirby* seems to be merely a faded specimen; at least the very short description points out no distinctive character. The color in my series varies from greenish black to blackish purple.

5. M. perplexus, nigro-virescens, opacus, capite thoraceque minus dense punctatis, hoc vix angustiore, latitudine non breviore, lateribus subsinuatis basi subemarginato, elytris subtiliter intricato-rugosis apice obtusioribus. Long ·7.

One male specimen, Pennsylvania. This species is so similar in characters to the preceding, that I hesitate to consider it distinct. On close comparison, however, the differences are absolutely irreconcileable. The antennæ are longer and more slender, so that the four last joints are equal in length to the four that precede them. The punctures of the head and thorax are less dense and more equally distributed; the thorax, instead of being ovoid, is rather bell-shaped, from the concavity of the sides; it is somewhat narrowed behind, and the base is scarcely emarginate. The elytra are broader and much more obtuse at the apex; the basal impression is altogether transverse, and not at all longitudinal. The color is greenish black, becoming distinctly green on the elytra.

b. Antennæ sexus utriusque conformes.

6. M. parvus, niger, opacus, capite thoraceque confertim punctatis, hoc vix angustiore, transverso, subtiliter canaliculato, basi truncato, elytris longioribus, granulis distinctis minus elevatis asperatis. Long. ·33—·43.

Haldeman. Stansbury's Report of Exploration of Salt Lake, 377.

Sta Fé; collected by Mr. Fern, and given me by Haldeman. The antennæ are as long as the head and thorax, the third joint equal to the two next; the dorsal surface of the abdomen is indistinctly rugous.

Species dubia.

M. americanus, *Leach*, Lin. Tr., 11, 251, pl. 18, figs. 5 and 6.

"Caput violascens, punctis minutis impressum. Thorax violascens, punctis minutis vage impressus, postice emarginatus et marginatus. Elytra nigra, subnitentia, minime rugulosa. Abdomen nigrum subnitens, rugulosum, coriaceum. Pedes nigri, pilis brevissimis obtecti. Ungues interni ferruginei, externi nigri."

The antennæ in the figure are represented slender, as in M. angusticollis *Say*, and M. mœrens *Lec*. In color it resembles the latter, but no mention is made of the elytral punctures, which form a very conspicuous character of that species. From the small size of the punctures of the head and thorax it would appear probable that Leach had M. angusticollis *Say* in view, but as the remarkably small size of the thorax is not alluded to, I do not feel justified in sacrificing Say's good description to Leach's very poor one, until it shall be rendered necessary by the examination of Leach's typical specimens, if they should still exist.

CYSTEODEMUS *Lec.*

Although possessing a species of this curious genus, Brandt and Erichson seem to have been misled by its external resemblance to Meloe, and have therefore failed to recognise its generic value. There is a radical difference in the elytra, which, instead of being coriaceous and imbricate, are here of a strong and firm structure, with the suture regular. In certain species the elytra are very large, so as to extend far beyond the abdomen; they are then connate at the suture; in other species (the first division) the elytra are small, although convex and inflated; they are then entirely separated, and commence diverging from the very base, on account of the large size of the abdomen. The antennæ are short and filiform, 11-jointed, the 2d joint short, the 3d scarcely longer than the 4th. The palpi are much shorter than in Meloe. The legs are long and slender, the spurs are small, slender and acute; the claws of the tarsi are toothed near the base.

Meloe cancellatus *Br. & Er.*, (l. c. 141, tab. 8, fig. 9,) belongs to the first division of this genus, but is distinguished by having the interstices of the large punctures of the elytra red.

a. Elytra divergentia, abdomine multo breviora.

1. C. vittatus, niger, capite thoraceque opacis vage grosse punctatis, illo basi fere truncato, hoc subquadrato, subtiliter canaliculato, basi valde emarginato, elytris brevibus, inflatis, obtusis cribrato-punctatis vitta angusta rubra utrinque abbreviata; abdomine amplissimo lævigato. Long ·5—·7.
New Mexico. Dr. Wislizenus.

b. Elytra amplissima, connata.

2. C. Wislizeni, supra cyanescens, nitidus, capite thoraceque grosse punctatis, illo postice rotundato, hoc pentagono, canaliculato, angulis lateralibus acutis, elytris splendide cyaneis sphericis, foveis profundis confertis cancellatis. Long. ·65.
Le Conte, Ann. Lyc. 5, 158.
New Mexico, Dr. Wislizenus. The body beneath is black; the legs are steel blue.

3. C. armatus, obscure æneo-olivaceus, opacus, capite punctato, postice canaliculato, occipite conico, thorace punctato, utrinque spina acuta armato, elytris antrorsum angustatis, dorso antice late depressis, spatiis impressis irregularibus reticulatis. Long. ·4—·65.
Le Conte, Ann. Lyc. 5, 158.
On the desert near the Colorado river of California, usually on Larrea mexicana. I can find no sexual characters. The body beneath is black, the legs are steel-blue.

HENOUS *Hald.*

Though the characters of this genus approach very closely to Meloe, yet there is again a difference in the elytra, which are connate, and not at all imbricate. The form of the body is nearly that of some species of Lytta; the elytra are oblong-elongate, convex, a little shorter than the abdomen and obtusely obliquely truncate at tip. The antennæ are filiform, or rather setaceous, the 2d joint short, the 3d joint as long as the two following united; the 3d to the 6th slightly dilated in the male; the labrum is slightly emarginate; the palpi, as in Lytta, moderately long and slightly dilated. The legs are slender, one of the spurs of the posterior tibiæ is concave and obtuse; the ungues are cleft to the base, with the parts nearly equal. When the abdomen of the female is distended, the upper segments are separated from the central segments by a wide membraneous space.

1. H. confertus, ater opacus, subtiliter dense nigro-pubescens, capite thoraceque confertissime punctatis, hoc non angustiore, antice rotundato, basi emarginato, latitudine non breviore, elytris plus duplo latioribus confertissime subtilius scabro-punctatis. Long. ·37—·75.
Meloe conferta Say, Jour. Ac. Nat. Sc. 3, 281.
Henous techanus Haldeman, Stansbury's Expedition to Great Salt Lake, 377, pl. 9, fig. 12—14.
Missouri Territory and Texas, not rare. The thorax is finely canaliculate, but sometimes this character is scarcely apparent.

LYTTA *Fabr.*

Cantharis‖ Geof.

After a very careful study of the numerous species of this genus inhabiting the United States, I have concluded that the groups separated under the names Pyrota *Dej.*, Epicauta *Redt.* (‡*Dej.*) and Tegrodera *Lec.*, are unnecessary. The only characters of the two first consist in the form of the antennæ, and in looking over a number of species, one will readily perceive that there is a regular transition from one group to another; other forms of antennæ (such as appear in division C.,) although equally common, and less intimately related to the other groups, have not, however, been commemorated by a generic name.

Tegrodera *Lec.* was established on a single Californian species, differing remarkably in appearance from all the other species known to me, and having the claws of the tarsi apparently toothed instead of bifid. On close examination I find that this apparent tooth is not a protuberance on the claw, as in Cysteodemus, but merely the ordinary inferior division of the claw, which is here shorter and more intimately connected with the claw itself, the line of junction being visible quite to the base of the claw.

In consequence of the changes in classification, which are here proposed, I give the following as the diagnosis of Lytta:

Corpus præcipue alatum, elytris integris non imbricatis; antennis 11-articulatis; unguiculis tarsorum non serratis, fissis, parte inferiore plerumque superiori æquali; tarsorum articulo 4to non emarginato.

A. Antennæ apicem versus incrassato, articulo 2do breviore.	
A. Labrum subemarginatum.	
a. Tibiæ posticæ calcaribus duobus obtusis armatæ	Sp. 1.
b. Tibiæ posticæ calcare altero cylindrico truncato, altero acuto	Sp. 2—6.
c. Tibiæ posticæ calcare altero concavo, altero acuto	Sp. 7—16.
d. Tibiæ posticæ calcaribus duobus tenuibus subacutis	Sp. 17—18.
B. Labrum valde emarginatum	Sp. 19—33.
B. Antennæ filiformes vel setaceæ, articulo 2do breviore.	
e. Corpus glabrum, antennæ laxæ articulatæ; tib. post. calcare externo obtuso	Sp. 24—27.
f. Corpus parce pilosum, calcaribus posticis subæqualibus	Sp. 28—30.
g. Corpus pubescens, antennis laxe articulatis	Sp. 31—39.
h. Antennæ articulatis arcte coniunctis:	
* Ungues æqualiter fissi	Sp. 40—41.
** Ungues parte inferiore minore	Sp. 42—43.
C. Antennæ setaceæ, articulo 1mo valde elongato.	
i. Corpus apterum	Sp. 44—45.
k. Corpus alatum	Sp. 45—52.

A.—a.

1. L. **vulnerata**, nigra nitida, capite postice, thoracisque angulis lateralibus acutis rubris, illo basi subemarginato macula occipitali nigro, elytris subtiliter rugosis. Long ·4—1·0.

Cantharis vulnerata Le Conte, Ann. Lyc. 5, 159.

San Diego, September, abundant on a species of Baccharis. Black shining, above glabrous. Head sparsely punctured in front, scarcely so behind, slightly dilated behind the eyes, which are oblique; base subemarginate, posterior angles rounded, with a large rufous spot reaching almost to the eyes, and extending obliquely forwards meeting the opposite spot, so as to enclose a large occipital black spot, which is slightly channeled; clypeus and labrum punctured and pubescent with erect black hairs. Antennæ about as long as the head and thorax, moderately thickened, with the external joints subglobular. Thorax scarcely wider than the head, pentagonal, sparsely punctured, disc flattened, lateral angles acute, marked with a large rufous spot. Elytra finely scabrous. Legs black, intermediate tibiæ curved; posterior tibiæ armed with two broad spurs, which are concave and obtuse at their apex.

A.—b.

2. L. **fulvipennis**, nigra, nigro-pubescens, capite thoraceque rotundato subtilius punctatis, illo puncto verticali rubro, elytris glabris opacis, fulvis dense scabro-punctatis. Long. ·70.

Texas and Mexican Boundary Commission; Col. J. D. Graham and Dr. Woodhouse. The antennæ are incrassated externally, a little wider than the head and thorax, with the outer joints subglobular; the thorax is somewhat flattened on the disc, not wider than the head and almost round; the scutellum is black; the elytra are nearly twice as wide as the thorax, glabrous, fulvous or luteo-rufous, densely punctured and entirely without lustre. The intermediate tibiæ are curved; the external spur of the posterior tibiæ is very broad and stout, obliquely truncate at tip.

3. C. **dichroa**, nigra, supra glabra lutea, capite antice antennisque nigris, thorace subrotundato minus convexo, parce punctato, nigro biguttato, elytris sesqui latioribus subtilius scabro-punctatis. Long. ·75.

One specimen, Mexican Boundary; collected by Mr. Clark, under Col. J. D. Graham. Head sparsely punctured black behind the eyes luteous, sides parallel, base broadly rounded. Antennæ scarcely as long as the head and thorax, joints from the 4th subglobular, increasing in size, last joint oval, acute. Thorax as broad as the head, rounded, very slightly transverse, base broadly rounded, slightly margined, disc not convex, obsoletely channeled, sparsely punctured, marked with two black dots before the middle. Scutel black. Elytra one half wider than the thorax, scabrous with punctures which are somewhat smaller than in C. fulvipennis. Beneath black, middle tibiæ curved; outer spur of the posterior tibiæ very thick, and cylindrical, obliquely truncate.

4. L. **biguttata**, nigra, parce pallide pubescens, capite parce punctato, puncto verticali flavo, thorace convexo luteo, nigro-bipunctato, elytris luteis scabro-punctatis macula utrinque pone medium nigra. Long. ·4.

Santa Fé, New Mexico; Fendler. Body black, above and below thinly pubescent with pale hair. Head black, sparsely and coarsely punctured, base almost truncate; vertex with a yellow spot, eyes moderately large. Antennæ scarcely longer than the head and thorax, thickened externally, outer joints subglobular, in the male the 4th, 5th and 6th joints are a little swollen, so that the 3d joint is smaller than the 4th. Thorax convex, rounded, impressed and subemarginate at base, luteous shining, sparsely punctured, with two small black spots on the disc, and occasionally another one each side on the edge of the disc. Scutel black. Elytra twice as wide as the thorax, scabrous-punctured dull yellow, with a black spot on each behind the middle; the extreme margin of the suture is black anteriorly. The feet vary from luteous to black; when they are luteous, the knees and tarsi are fuscous: the intermediate tibiæ are curved; the outer spur of the posterior tibiæ is thick, cylindrical and obliquely truncate at the tip; the inner one is shorter and acute. The body beneath is black, the last joints of the abdomen more or less yellow on the sides.

5. L. **nitidicollis**, nigra, capite thoraceque luteo-flavis nitidis parce punctatis, hoc longiusculo, elytris subopacis luteis scabris. Long. ·65.

Cantharis nitidicollis Le Conte, Ann. Lyc. 5, 160.

San Diego, California, June, not common. Head above and below shining reddish yellow, very sparsely punctured, sides behind the eyes parallel, base broadly rounded; eyes moderately large; mouth black; antennæ longer than the head and thorax, slightly thickened externally, outer joints oblong, slightly rounded. Thorax a little narrower than the head, longer than wide, narrowed in front, shining reddish yellow, very sparsely punctured, with a shallow transverse concavity before the middle. Scutel black or dusky. Elytra twice as wide as the thorax, luteous, scabrous-punctate, almost without lustre, with two slight lines more distinct than usual. Body and feet black, the intermediate tibiæ slightly bent, posterior tibiæ with the external spur cylindrical, thick and obliquely truncate, the inner one small, slender, subacute.

6. L. **mœrens**, atra, subopaca, capite thoraceque parce punctatis, hoc subquadrato, antice rotundato ad medium breviter canaliculato, elytris thorace sesqui latioribus scabris. Long. .7.

Cantharis mœrens Le Conte, Ann. Lyc. 5, 216.

One specimen, Sacramento, California, collected by Mr. J. Child, and given me by Mr. S. S. Rathvon. Body entirely dull black. Head a little dilated behind the eyes, which are oblique and moderate, base truncate, surface thinly and coarsely punctured, vertex subcanaliculate; front before the antennæ transversely

. Antennæ scarcely longer than the head and thorax, moderately thick-
xternal joints rounded, a little longer than wide, slightly conical. Thorax
as wide as the head, subquadrate, rounded on the sides anteriorly, disc not
, sparsely punctured, with a short impressed line at the middle. Elytra
f wider than the thorax, parallel, densely and tolerably finely scabrous.
tibiæ curved; posterior tibiæ with the outer spur more slender than
cylindrical, obliquely truncate at tip; inner one half as long, subacute.

A.—c.

. **tenebrosa**, nigra fere opaca, capite punctato, gutta verticali rubra
thoraceque alutaceis, hoc subquadrato, antice angustato, parce punctato,
e canaliculato, elytris duplo latioribus subtiliter scabro-punctatis.
·6—·8.
haris tenebrosa Le Conte, Ann. Lyc. 5, 160.
Diego, California, two specimens. Body dull black, more robust than
Head opaque with fine rugosities, coarsely punctured, dilated behind the
nd almost emarginate at base; vertex impressed, with a small red spot.
æ shorter than the head and thorax, stouter than usual, incrassated exter-
vith the outer joints subglobular. Thorax not narrower than the head,
ugous like it, but very sparsely punctured, subquadrate, rounded in front,
narrowed behind, very obsoletely channeled. Elytra twice as wide as
rax at base, a little dilated behind, very finely, not densely scabrous with
·es. Middle tibiæ scarcely curved; posterior tibiæ with the outer spur
concave, somewhat spatulate, and subobtuse at tip; inner spur slender, as
the outer one; trochanters unarmed.

. **salicis**, purpureo-cyanea, capite thoraceque parce pilosis, vage punc-
lo puncto verticali rubro, hoc quadrato transverso, elytris scabris, brevis-
losis. Long. ·65—·75.
t Salt Lake City, on willows; collected by Capt. H. Stansbury; (Lytta
Hald.) Body above purplish blue, beneath steel blue. Head dilated
the eyes, truncate at base; surface coarsely punctured, pilose with erect
airs; vertex channeled, with a small red dot. Antennæ a little longer
e head and thorax, incrassated externally, outer joints subglobular.
transverse, rounded on the sides anteriorly, slightly narrowed at base,
arsely punctured, with a few short black hairs; disc flattened, channeled,
rsely impressed before the middle, basal margin reflexed. Elytra one
der than the thorax, parallel, scabrous, with a few distant very short
airs. Legs blackish; middle tibiæ slightly curved; posterior tibiæ with
er spur slender, concave and slightly obtuse; inner spur subacute, as
the outer one. Posterior trochanters of the male with a sharp spine
ly.

cyanipennis, cyanea, capite thoraceque viridi-aureis nitidis, parce
is, illo gutta verticali rubra, hoc subpentagonali, canaliculato, basi reflexo,
scabris breviter parce nigro-pilosis. Long. ·55.
laris cyanipennis Le Conte, Ann. Lyc. 5,160.
n. Head shining, golden green, sparsely punctured, scarcely pilose,
dilated behind the eyes, truncate, and almost emarginate at base;
lightly channelled, marked with a cupreous red dot. Antennæ as long
ead and thorax, moderately incrassated, outer joints subglobular. Thorax
reen, subpentagonal, lateral angles rounded, sides anteriorly pilose, disc
punctured, flattened, channeled, foveate each side behind the middle;
argin strongly reflexed. Elytra metallic blue, more than one half wider
thorax, parallel, scabrous, with a few erect black hairs. Body beneath
t black; middle tibiæ curved; posterior tibiæ with the outer spur mode-
road, concave, and subobtuse at the apex; inner spur slender, as long as
r one. The posterior trochanters of the male are armed with a sharp
ar the base. The outer spur of the posterior tibiæ, when seen laterally
pecies, appears as slender and sharp as the inner one, and accounts for
neous position given this species in my memoir in the Annals of the Ly-

ceum; I also failed to discover the spine of the posterior trochanters, but the limbs were drawn up tightly, and the specimen was so bad that any relaxation with hot water was attended with great risk. By breaking off the posterior extremity, I have, however, completed my examination in a satisfactory manner.

10. L. **Nutalli**, capite piloso thoraceque viridi-aureis, nitidis, parce punctatis, illo puncto verticali rubro, hoc pentagono, canaliculato, basi reflexo, elytris purpureo-cupreis, confertissime scabris breviter parce nigro-pilosis. Long. ·7.

Say, Journ. Ac. Nat. Sc., 3, 300: Am. Ent. 1, pl. 3.

Nebraska Territory, near Missouri River; J. J. Audubon, Esq. Head pilose, with erect hair, shining golden green, dilated behind the eyes, truncate at base; surface coarsely punctured, vertex slightly channeled, marked with a small, cupreous spot. Antennæ black, longer than the head and thorax, slightly thickened externally, outer joints rounded, sub-conical. Thorax golden green, pentagonal, lateral angles distinct, disc sparsely punctured and pilose, flattened, channeled, transversely impressed before the middle, foveate each side, strongly reflexed at the base. Elytra one half wider than the thorax, parallel, densely scabrous and sparsely pilose with short black hair; they are coppery purple, with the base, suture and extreme margin green. Beneath bluish green; feet blue; middle tibiæ curved, posterior tibiæ with the outer spur broad, concave, somewhat pointed, inner spur slender, acute. Posterior trochanters of the male armed with a sharp spine at the middle; the antennæ of the male are a little longer than those of the female.

11. L. **fulgifer**, capite thoraceque aureo-cupreis nitidis, parce punctatis vix brevissime pilosis, illo gutta verticali flavescente, hoc pentagono, inæquali, basi reflexo, elytris olivaceis, scabris, sutura margineque cupreascentibus. Long. ·9.

Cantharis fulgifer Le Conte, Journ. Ac. Nat. Sc. New Ser. 1, 96.

One specimen from the Arkansas near Bent's Fort. Head shining, cupreous, sparsely punctured, scarcely pilose, dilated behind the eyes, sub-emarginate at base, occiput slightly channeled, vertex with a small, yellowish green dot; mouth and antennæ black, the latter scarcely longer than the head and thorax, moderately thickened externally, outer joints rounded. Thorax cupreous, pentagonal, with the lateral angles almost acute, disc flattened, sparsely punctured, obsoletely channeled, transversely impressed anteriorly, broadly foveate each side at the middle; base strongly reflexed. Elytra scarcely one half wider than the thorax, strongly scabrous, olivaceous, slightly brassy, suture and margin somewhat cupreous. Beneath, pectus greenish, abdomen cupreous brassy; feet bluish; middle tibiæ strongly curved, posterior tibiæ with the outer spur broad, concave and sub-acute, inner spur slender, acute. Posterior trochanters obtusely toothed at the middle.

12. L. **æneipennis**, capite thoraceque parce pilosis vage punctatis, rufis, illo antice nigro, hoc sub-quadrato, transverso, basi subreflexo, elytris olivaceo-æneis, scabris, brevissime parce pilosis. Long. ·26—·4.

Cantharis æneipennis Le Conte, Ann. Lyc. 5,160.

Santa Isabel, Southern California. Head black, behind the eyes rufous, nearly truncate at base, sparsely punctured, pilose, with erect hair. Antennæ black, as long as the head and thorax, slightly incrassated externally, third joint longer than in the preceding species, outer joints oblong, slightly rounded; last joint oval, not acuminate as in most species. Thorax rufous, a little narrower than the head, transverse quadrate, sparsely punctured and pilose, obsoletely channeled, base with a subreflexed margin. Elytra more than one half wider than the thorax, parallel, scabrous, olive colored, somewhat brassy, sparsely pubescent, with excessively short gray hair. Beneath greenish black; middle tibiæ slender slightly curved; outer spur of posterior tibiæ slightly dilated, concave and sub-acute; inner spur slender.

13. L. **smaragdula**, nigro-viridis, vel cyaneo-viridis, capite thoraceque vage punctatis, sub-pilosis, illo gutta verticali rubra, hoc subquadrato, basi subreflexo, elytris scabris, antennis nigris elongatis. Long. ·37—·40.

Two specimens from Santa Isabel, California; another brighter colored one from Sacramento, from Mr. Rathvon. Greenish black, or bright blue-green; head sparsely punctured and pilose, truncate at base, vertex with a red spot. Antennæ black, more than half as long as the body, very slightly thickened, outer joints elongate, oval, last joint acuminate. Thorax as wide as the head, subquadrate, rounded anteriorly, sparsely punctured, base moderately reflexed, disc sometimes channeled and impressed. Elytra one half wider than the thorax, parallel, scabrous, sprinkled with extremely short, indistinct hairs; middle tibiæ slender, slightly bent; posterior tibiæ as in the last, but the outer spur is less dilated.

14. L. **stygica**, atra, opaca, capite nitidiusculo, parce punctato, gutta verticali testacea, thorace sub-quadrato, vage punctato, basi reflexo, elytris scabris. Long. ·48—·55.

Cantharis stygica Le Conte, Ann. Lyc. 5, 161.

Oregon. Entirely dull black, without lustre, except on the head. Head parallel on the sides, almost truncate behind, occiput slightly channeled, vertex with a testaceous spot. Antennæ longer than the head and thorax, slightly thickened externally, outer joints rounded oval. Thorax quadrate, rounded in front, sparsely punctured, scarcely channeled, basal margin reflexed. Elytra nearly twice as wide as the thorax, parallel, very scabrous. Legs as in the preceding species.

15. L. **Rathvoni**, capite thoraceque parce punctatis, viridi-aureis, illo puncto verticali rubro, hoc ovali, latitudine longiore, elytris purpureis scabris, antennis nigris elongatis. Long. ·35.

A beautiful little species found near Sacramento, California, by Mr. Child, and given me by Mr. S. S. Rathvon. Head bright golden green, sparsely punctured, with a few fine gray hairs; occiput rounded; vertex broadly impressed, with a small red spot. Antennæ black, joints 3–9, slender, scarcely increasing in thickness, longer than the head and thorax, (remainder wanting.) Thorax shining golden green, longer than wide, oval, sparsely punctured, base slightly reflexed. Elytra a little wider than the head, coppery purple, scabrous, obsoletely sprinkled with short hair. Beneath blackish green, with cinereous pubescence: middle tibiæ slender, slightly curved; (posterior tibiæ wanting.)

16. L. **lugens**, atra, parce pilosa, capite thoraceque nitidiusculis, parce punctatis, hoc elongato antice angustato, elytris scabris. Long. ·42—·5.

Cantharis lugens Le Conte, Ann. Lyc. 5, 161.

Abundant at San Diego, California. A long, slender, black species, resembling some in Division (B.), but with the antennæ of the present division. Head moderately punctured and pilose, base broadly rounded, vertex slightly impressed, not spotted. Antennæ as long as the head and thorax, moderately thickened externally, outer joints rounded, very little longer than wide. Thorax narrower than the head, one half longer than wide, narrowed at tip, base scarcely at all margined, disc sparsely punctured and pilose, scarcely impressed. Elytra long, parallel, a little wider than the thorax, scabrous, sparsely pilose. Middle tibiæ slightly curved; posterior tibiæ with the outer spur a little thicker than the inner one, concave and slightly obtuse at apex.

The difference between the spurs of the posterior tibiæ is not obvious, except on very close inspection, but the appearance of the species refers it to this division rather than to those with two acute spurs on the posterior tibiæ.

A—d.

17. L. **chalybea**, cyanescens, capite thoraceque nitidis convexis, parce punctatis, hoc subcampanulato, antice impresso, elytris convexis postice latioribus, scabris, antennis subserratis. Long. ·42.

Cantharis chalybea Le Conte, Ann. Lyc. 5, 160.

Oregon, one specimen. Above dark blue; head shining, rounded, convex, sparsely and coarsely punctured, finely channelled. Antennæ as long as the head and thorax, black, subserrate, the joints from the fourth being quadrate and slightly compressed, last joint oval, not acuminate. Thorax subcampanulate, sparsely punctured, shining, broadly impressed before the middle, obsoletely channelled, deeply foveate at the middle of the base. Elytra wider than usual, dilated behind and convex, scabrous, with close set punctures. Beneath greenish black; middle tibiæ slender, scarcely curved; posterior tibiæ with two small equal acute spurs.

18. L. **convexa**, minus elongata, nigra, capite thoraceque parce punctatis, convexis, hoc ovali, subcanaliculato, basi medio foveato, elytris cyanescentibus postice dilatatis, scabro-punctatis, antennis subserratis. Long. ·41.

Mexican Boundary Commission; collected by Mr. Clark, under Col. J. D. Graham. Very similar to the preceding, but the head and thorax are black; the latter is less companulate, more convex, and not impressed anteriorly; the elytra are more dilated posteriorly, and diverge at the suture. The feet and antennæ precisely as in C. chalybea.

C. **sphæricollis** (*Lytta sph.* Say. Journ. Ac. Nat. Sc. 3, 299,) must be closely related to these two species, but will be distinguished by its more slender form, and by the second joint of the antennæ being rufous.

B.

19. L. **femoralis**, ænea, subnitida, supra fere glabra, thorace lateribus parce punctato versus basin angustato, basi subreflexo, elytris subtiliter punctulatis, pedibus cyaneis, femoribus (apice excepta) rufis, antennis nigris gracilibus. Long. ·7.

One male specimen. Louisiana; Mr. Guex. Body slender, brassy somewhat dull. Head sparsely punctured, truncate at base, a little narrowed behind the eyes, which are large and prominent; labrum green, deeply emarginate, strongly punctured. Antennæ, from the 5th to the 10th joints, gradually decreasing in length, increasing very slightly in thickness, slender, oblong, scarcely rounded; eleventh joint subconstricted, external part conical. Thorax as wide as the head; slightly pentagonal, narrowed towards the base; disc slightly flattened, with several shallow impressions, sides sparsely punctured, scarcely pilose; base slightly reflexed. Elytra a little wider than the thorax, finely and indistinctly punctulate, with a scattered, scarcely perceptible pubescence. Legs blackish blue, femora bright rufous, black at the apex; the middle of the posterior tibiæ is slightly rufous inferiorly; middle tibiæ short, slightly curved; outer spur of the posterior tibiæ broad and concave.

This species is very similar to the next, but the black tarsi, and finely punctulate elytra will distinguish it; the head is less quadrate and is not wider than the thorax: the anterior tibiæ are emarginate at the apex internally, which is probably a sexual character.

20. L. **polita**, ænea, subnitida, supra fere glabra, thorace capite angustiore, lateribus parce punctatis versus basin angustato, bifoveato, basi subreflexo, elytris subtilissime rugosis pedibus rufis, genubus tibiisque anterioribus nigris, tarsis fuscis, antennis nigris gracilibus. Long. ·65.

Say, Journ. Ac. Nat. Sc. 3, 302.

One female; Georgia. Body slender, brassy, somewhat dull. Head sparsely punctured, a little dilated behind the eyes, which are prominent, squarely truncate at base; labrum blue, punctured, deeply emarginate. Antennæ black, a little longer than the head and thorax, scarcely thickened externally, joints oblong, equal in length, last joint longer, constricted, conical at tip. Thorax narrower than the head, longer than wide, slightly narrowed towards the base; sparsely punctured and slightly pilose towards the sides, disc somewhat flattened, deeply bifoveate, basal margin reflexed at the middle. Elytra scarcely wider than the head, parallel, very finely rugous, and obsoletely punctulate. Thighs rufous, coxæ, trochanters and knees black, anterior and middle tibiæ black, slightly rufous in the middle; posterior tibiæ rufous, black at tip: tarsi dark fuscous; outer spur of the posterior feet broad, concave and obtuse.

21. L. **Sayi**, olivacea fere opaca, capite thoraceque parce pilosis, subtiliter

.age punctatis, hoc subcampanulato, basi medio impresso, elytris fortiter punctulatis, pedibus flavo-rufis, genubus, tibiis apice tarsisque cœruleo-nigris, antennis nigris extus incrassatis. Long. ·7.

Lytta ænea var. Say, Long's Exped. St. Peter's River, 2, 288.

One specimen, Illinois. Mr. Rathvon. Brassy olive colored, without lustre; head finely and sparsely punctured, pilose, with short, gray hair, slightly dilated behind the eyes, which are moderate, truncate at base, obsoletely emarginate. Labrum blue, deeply emarginate. Antennæ black, about as long as the head and thorax, moderately thickened externally, outer joints conical, rounded, last joint less constricted than in the two preceding. Thorax scarcely narrower than the head, obsoletely sparsely punctured, slightly pilose, campanulate, sides parallel, disc slightly flattened, obsoletely channelled, middle of the base slightly reflexed. Elytra nearly twice as wide as the thorax, parallel, finely and densely punctured. Legs bright orange colored, coxæ, trochanters, knees, apex of the tibiæ and tarsi blackish blue; outer spur of posterior tibiæ subrhomboidal, concave.

22. L. filiformis, elongata, purpurascens, cinereo parce piloso, thorace lateribus parallelis parce punctulato, basi medio reflexo, elytris subtiliter scabris, pedibus flavis, genubus tarsisque fuscis, antennis nigris extus incrassatis, Long. ·33.

Cantharis filiformis Le Conte, Journ. Ac. Nat. Sc., New Ser., 1, 91.

One specimen; Texas. Mr. Lindheimer, and given me by Dr. Engelmann. Body slender, purplish, brassy, moderately pilose, with gray hair. Head not dilated behind the eyes, truncate at base, sparsely and coarsely punctured: mouth black, labrum deeply emarginate. Antennæ longer than the head and thorax, thickened externally, outer joints subglobular, last joint not constricted. Thorax subquadrate, sides parallel, rounded in front, obsoletely punctulate: base reflexed in the middle; elytra a little wider than the thorax, parallel, finely scabrous. Feet rufo-testaceous, knees and tarsi darker; coxæ and trochanters black; outer spur of the posterior tibiæ broad and concave.

23. L. ænea, minus elongata, obscure ænea, capite parce punctato thoraceque cinereo-pilosis, hoc subquadrato, lateribus parce punctato, basi vix reflexo, elytris scabris, pedibus rufo-testaceis, antennis extus incrassatis. Long. ·57.

Say, Journ. Ac. Nat. Sc. 3, 301.

Cantharis nigricornis Lec, Journ. Ac. Nat. Sc., New Ser., 1, 90.

Pennsylvania and Missouri. The head is obsoletely emarginate at the base; the outer joints of the antennæ are subglobular, the last joint not constricted. *C. nigricornis* Lec. is a variety with more punctures on the side of the thorax.

B—e.

24. L. mylabrina, supra flava glaberrima, capite convexo, parce punctato postice valde rotundato, labro palpis antennisque nigris, thorace elongato, apice angustato, nigro 4-guttato, elytris subtiliter punctulatis, maculis duabus utrinque pone basin, altera ad medium apiceque nigris; pedibus flavis, genubus tibiarum apice tarsisque nigris. Long. ·58.

Pyrota mylabrina Chevrolat, Ins. de Mexique, No. 3 (Nov. 1834.)

Mexican Boundary; collected by Mr. Clark. This species is extremely similar to the next, but differs in the form of the head, which is here much rounded behind, and not at all quadrate: the neck is marked with a black spot each side. The body beneath is variegated with black and yellow, the margin of the abdominal segments being always yellow. The outer spur of the posterior tibiæ is cylindrical and obliquely truncate.

25. L. Engelmanni, supra flava, glabra, capite convexo, parce punctato, nigro maculato postice latius rotundato, labro palpis antennisque nigris, thorace elongato nigro 4-guttato, apice angustata utrinque nigromaculata, elytris confertissime punctulatis, maculis duabus pone basin, altera magna ad medium, apiceque nigris, pedibus nigris, femoribus basi testaceis. Long. ·7.

Pyrota Engelmanni Le Conte, Journ. Ac. Nat. Sc., New Ser., 1, 91.

Missouri. Dr. Engelmann; two specimens. From the difference between these specimens, the variations in this species must be very great. One has the posterior angles of the head entirely black, while in the other there are merely indistinct black dots: there are also two black dots between the antennæ. The neck has a single spot on the middle, instead of two lateral spots as in C. mylabrina; the thorax, besides the four spots arranged transversely, has an apical spot each side; the disc is transversely concave before the middle; the basal spots of the elytra are sometimes confluent; the medial spot is much larger than in C. mylabrina. The under surface is variegated with black and yellow; the margin of the segments of the abdomen, and usually the whole of the last segment being yellow. Outer spur of the posterior tibiæ cylindrical and obliquely truncate.

A specimen from the Creek Boundary, given me by Dr. S. W. Woodhouse, differs from the two original specimens in having the head unspotted; the elytra more finely and less densely punctur[illegible] postpectus entirely rufous, and the feet colored as in C. mylabrina; the [illegible]owever, is somewhat quadrate posteriorly, and the spot on the neck is me[illegible], the middle spot of the elytra is large. I have therefore placed the specimen under C. Engelmanni, though it may possibly be a distinct species; a much larger series of specimens will be necessary to determine the value of the characters above mentioned.

26. L. Germari, capite parce puncta[illegible] nigro, macula verticali magna flava, thorace elongato, flavo nigro biguttato, el[illegible]is confertim punctulatis, sutura vittaque lata nec humerum nec apicem at[illegible]ente nigris; scutello nigro, pedibus flavis, genubus tibiarum apice tarsi[illegible]is. Long. ·32—·47.

Haldeman, Proc. Ac. Nat. Sc. 1[illegible]

Pyrota Germari Le Conte, Journ. [illegible]at. Sc., New Ser., 1, 91.

Baltimore and North Carolina; M[illegible]eman. The black sutural margin is dilated anteriorly, and frequently se[illegible] from the other portion, forming an elongate spot; the vitta is narrowe[illegible]ards the base; the body beneath is black; the outer spur of the post[illegible] is more obliquely truncate than in the two preceding species, so as to [illegible]attened and concave.

27. E. discoidea, flava, capite punctato, thorace elongato, nigro biguttato, apice angustato, elytris subtiliter scabris macula subbasali, vitta utrinque abbreviata, suturaque angustissima nigris, pectore, genubus, tibiarum apice, tarsis palpis antennisque nigris. Long. ·27—·45.

One specimen, found on the Platte river by Wm. Tappan, and given to me by Prof. Agassiz; several found in Texas by Lieut. Haldeman. Head yellow, convex, broadly rounded behind, not densely punctured, pilose, with short, erect hairs: palpi black. Antennæ black, base testaceous; longer than the head and thorax, filiform, less slender than in the preceding species, joints loosely articulated, 11th not constricted. Thorax narrower than the head, one half longer than wide, narrowed at the apex, transversely impressed before the middle, basal margin impressed at the middle, with a few scattered hairs, punctured, bright yellowish testaceous, with discoidal round black spots at the middle. Scutellum yellow. Elytra yellow, with a small, oblong, black spot near the scutel, and a moderately wide, black vitta reaching neither the base nor the apex; the extreme sutural margin is also black; the surface is rough, with fine wrinkles, scarcely punctured. Postpectus black, abdomen yellow; feet yellow, knees, tips of the tibiæ and tarsi black; posterior tibiæ with the outer spur cylindrical and obliquely truncate.

B—f.

28. L. puncticollis, nigra, minus dense nigro-pilosa, capite thoraceque confertim punctatis, hoc elongato, subcanaliculato, apice angustato, elytris scabro-punctatis. Long. ·36—·45.

Epicauta puncticollis Mannerheim, Bull. Mosc. 1843, 288: Le Conte, Ann. Lyc. 5, 162.

San Diego and San Francisco, California; abundant. This species differs from the next in having the thorax more densely and less coarsely punctured; the antennæ are a little more slender, but as there is a slight difference in the antennæ depending on sex, this is not an obvious character; they are scarcely longer than the head and thorax, and the outer joints are closely connected. The spurs of the posterior tibiæ are equal and slender.

29. L. **oblita**, nigra, minus dense nigro-pilosa, capite thoraceque parcius grossius punctatis, hoc longiusculo, antice angustato, subcanaliculato, elytris scabro-punctatis. Long. ·36—·4.

Epicauta oblita Le Conte, Ann. Lyc. 5, 162.

San Francisco and Oregon. The outer joints of the antennæ are closely united; the posterior spurs as in the preceding.

30. L. **maura**, nigra vix nigro-pilosa, capite minus dense punctato, thorace subquadrato, longiusculo, parcius punctato, subcanaliculato, elytris scabro-punctatis, antennis elongatis, laxe articulatis. Long. ·4.

Epicauta maura Le Conte, Ann. Lyc. 5, 162.

San Francisco, California. Easily distinguished from the two preceding by the longer and more slender antennæ, and the more quadrate and much less punctured thorax. The spurs of the posterior tibiæ are slender and acute.

B—g.

31. L. **pensylvanica**, atra, immaculata, confertissime subtiliter punctata, brevissime pubescens, thorace quadrato, angulis anticis rotundatis, labro leviter emarginato. Long. ·4—·5.

Cantharis pensylvanica De Geer, Mem. Ins. 5, 13, pl. 13, fig. 1, (1775.)

Lytta atrata Fabr. Ent. Syst. (1775) 230; Ent. Syst. emend. 2, 86, (1792.) Syst. El. 2, 79.

Cantharis atrata Olivier, Ins. 46, 17, tab. 2, fig. 19, (1795): Harris, Ins. Injurious to Vegetation, 123.

Meloe atra Pallas, Icon. Insect. Ross. p. 99.

Lytta coracina Illiger, Mag. 3, 171. (1801.)

Meloe nigra Woodhouse, Medical Repository. 3, 213.

Abundant throughout the Atlantic States and Missouri Territory. The antennæ are slender; the outer spur of the posterior tibiæ is a little wider than the inner one, and slightly obtuse.

32. L. **convolvuli**, atra, confertissime punctata, breviter pubescens, capite postice obscure sanguineo, thorace longiusculo, elytrorum margine externo cinerascente. Long. ·26.

Cantharis atrata (var. *convolvuli*) Mels. Proc. Ac. Nat. Sc. 3, 53.

Pennsylvania: Dr. Melsheimer. This species resembles closely the preceding, but differs in the gray pubescence and in the form of the thorax, which is here longer than wide: the antennæ are less slender; the spurs of the posterior tibiæ appear to be more slender. The head in my specimen is dull black, very obscurely sanguineous at the base and on the vertex.

33. L. **fissilabris**, atra, subtiliter nigro-pubescens, subtiliter punctata, thorace quadrato, canaliculato, angulis anticis rotundatis, labro profunde emarginato. Long. ·68.

Epicauta fissilabris Le Conte, Agassiz' Lake Superior, 232.

One specimen: Kakabeka Falls, Lake Superior. This species differs from C. pensylvanica in being larger and more finely punctured; the antennæ are attenuated towards the apex, and the spurs of the posterior tibiæ are slender, equal and slightly obtuse. In the form of the body, which is more robust than C. pensylvanica, as well as in the deep emargination of the labrum, it resembles the next species.

34. L. **cinerea**, atra, dense cinereo-pubescens, capite postice dilatato, vertice nigro, thorace angustiore subcampanulato, nigro, lateribus vittaque cinereis; elytris vix rugosis, subtiliter cinereo-pubescentibus, margine suturaque cinereis, labro modice emarginato. Long. ·4—·7.

Meloe cinereus Forster, Cent. Ins. 62, (1771); Pallas, Icon. Ins. Ross. 98, tab. E, fig. 30.

Lytta marginata Fabr. Syst. Ent. (1775), 260: Syst. Ent. emend. (1792,) 1, 2, 85: Syst. El. 2, 79.

Cantharis marginata Olivier, 179. Ins. 46, 15, tab. 1, fig. 2: Harris, Ins. Injurious to Veg. 111; (ed. 2nda) 121.

Meloe clematidis Woodhouse, Medical Repository, 3, 213.

Atlantic States; abundant; feeds chiefly upon Clematis. The head of the female is less dilated behind the eyes, and the antennæ are much shorter. The spurs of the posterior tibiæ are as in the preceding species.

I was at first inclined to retain for this species the name under which it is usually known, though it is not properly the earliest. By the kindness of my friend Prof. Lacordaire, I have received a transcript of the portion of Pallas' work which relates to North American Coleoptera, and I there find that the earlier name was in reality the [illegible] among entomologists of that time. I therefore must regard the subs[illegible] abricius' later name as an accident, arising from the wide circulation of h[illegible] ks, and the comparative scarcity of Forster's small pamphlet. I do not u[illegible] and how Fabricius, in his Syst. Ent. emend., quotes Olivier, whose work bears [illegible] te on the title page, 1795, and whose first volume of plates is dated 1808.

35. [illegible] itarsis, atra, dense fusc[illegible] -pubescens, thorace subtransverso, antice [illegible] tiliter canaliculato, [illegible] bro profunde emarginato, pedibus r[illegible] s.

[illegible] ted [illegible] rk, under Col. J. D. Graham. The b[illegible] th[illegible] receding, black, finely and densely p[illegible] u, cove[illegible] ellc[illegible] rown hair. Head rounded behind, no[illegible] ed behi[illegible] eyes; [illegible] nnæ [illegible] setaceous, joints not closely articulat[illegible] brum d[illegible] emargi[illegible] not narrower than the head, a little wi[illegible] than long [illegible] oderately c[illegible] ded in front, and finely channeled. Elytra a little wi[illegible] than the thora[illegible] x. Legs rufous, pubescent like the body, knees, tip of the tibiæ and ta[illegible] k. Spurs of the posterior tibiæ slender, subacute.

36. L. **maculata**, atra, dense cinereo-pubescens, elytris guttis rotundatis denudatis sæpe confluentibus conspersis, thorace subquadrato, antennis breviusculis. Long. ·27—·5.

Say, Journ. Ac. Nat. Sc. 3, 298: Am. Ent. 1, 3.

Missouri Territory; tolerably abundant. The labrum is scarcely emarginate; the spurs of the posterior tibiæ are very slender and acute. The antennæ of the female are scarcely longer than the head and thorax, and are filiform; the 2d and 3d joints are rufous at base; the maxillary palpi of the male are strongly dilated and compressed.

37. L. **conspersa**, atra, dense flavo-cinereo-pubescens, elytris punctis paucis minutis denudatis conspersis, thorace convexiore, antennis elongatis. Long. ·47.

Missouri Territory. This species is so similar to the preceding, that were it not for the difference in the length of the antennæ, they could only be considered as varieties. The pubescence is slightly tinged with yellow, and is more coarse; the thorax is a little more convex and more bell-shaped; the antennæ in both sexes are half as long as the body: the black spots are punctiform and much less numerous. The male, as in the preceding species, has the palpi strongly dilated and compressed.

38. L. **vittata**, atra, punctulata subtilius pubescens, capite rufo, nigro bimaculato, thorace longiusculo flavo pubescente, nigro bivittato, elytris vix rugosis luteis vittis duabus latis nigris. Long. ·45—·65.

Fabr. Ent. Syst. 260; Ent. Syst. emend. 2, 86; Syst. El. 2, 79.

Cantharis vittata Olivier, Ins. 46, 13, tab. 1, fig. 3.

Meloe Chapmani Woodhouse, Medical Repository 3, 214.

Middle and Western States; abundant. The thorax is sometimes nearly black;

the antennæ are slender and setaceous; the spurs of the posterior tibiæ are equal, narrow and obtuse. The mouth and its organs are black; the labrum moderately emarginate; the feet are black, the thighs rufous at base. Pallas, Icon. Ins. Ross. tab. E. f. 33, is cited by Olivier under this species, but the reference does not appear in my manuscript.

39. L. lemniscata, atra, punctulata, pubescens, capite rufo, nigro bimaculato, thorace longiusculo, rufo nigro-bivittato, elytris luteis vittis utrinque tribus nigris, pedibus rufis marginibus nigris. Long. ·6—·7.

Fabr. Syst. El. 2, 79.

This species replaces the preceding in the Southern States; in form and structure it is precisely similar; the antennæ are a little shorter, the first joint and the base of the 2d and 3d are rufous; the labrum and palpi are rufous; the outer margin of the thighs, tibiæ and tarsi is black; the coxæ are rufous; the two external vittæ of the elytra are confluent at the humerus.

B—h.*

40. L. strigosa, atra, dense luteo-pubescens, vertice nigro, thorace longiusculo, antice subangustato vittis duabus obsoletis, elytris atris, margine sutura vittaque luteo pubescentibus, tarsis antennisque atris, his filiformibus, oculis rotundatis. Long. ·37.

Schönherr, Syn. Ins. Appendix, 18.

Middle and Southern States. The outer joints of the antennæ are closely articulated; the eyes are oval, very slightly emarginate, and not transverse, as in the species of the preceding division. The spurs of the posterior tibiæ in the species of this division are very slender and very acute. The vitta of the elytra is occasionally obsolete, and sometimes entirely wanting; in the latter case the pubescence of the thorax is more scanty, so that the specimens have entirely the appearance of small individuals of L. cinerea *Lec.* (*Lytta marginata Fabr.*)

41. L. ferruginea, atra, densissime luteo-pubescens, thorace longiusculo antice subangustato, tarsis antennisque nigris, his filiformibus, oculis rotundatis. Long. ·36.

Say, Journ. Acad. Nat. Sc. 3, 298.

Cantharis nigricornis Melsheimer, Proc. Ac. Nat. Sc. 3, 53.

Southern and Sonth-western States; rare. This species is exactly similar in form and stiucture to the preceding, and only differs in the pubescence being denser and uniform in color.

B—h.**

42. L. elegans, atra, tenniter cinereo-pubescens, capite thoraceque punctatis, illo puncto verticali rubro, elytris rugosis, vitta utrinque fulva antice et postice dilatata, macula laterali pone medium includente, unguiculis parte inferiore breviore. Long. ·45.

Epicauta elegans Le Conte, Ann. Lyc. 5, 161.

Two specimens; San Diego, California. Body black, thinly covered above and below with fine cinereous pubescence. Head rounded behind the eyes, which are oval, convex and scarcely emarginate; punctured, vertex with a small red spot, front with three faint impressions between the antennæ; antennæ shorter than the head and thorax, very slightly thicker externally, joints closely articulated, not at all rounded, 3d longer than the 4th. Thorax narrower than the head, somewhat bell-shaped, narrowed in front, ronnded on the sides, disc punctured, middle of the base transversely impressed. Elytra more than twice as wide as the thorax, convex, sides parallel; rugosely punctured, with a broad fulvous vitta, covering the whole humerus, and reaching the external margin at the base, contracted at one third the length of the elytra, then dilated again, and extending nearly to the tip, and including a lateral black spot at the posterior fourth; this spot is connected with the black margin. Tarsi black, claws testaceous, with the inferior portion one third shorter than the superior. Spurs of the posterior tibiæ very fine and acute.

The careful study of this species has convinced me that the genus founded by me on the next species is not natural, as the present shews in all its characters the gradual transition.

43. L. **erosa**, nigra, supra glabra, capite rufo trisulcato, sulco intermedio interrupto, thorace nigro inæquali canaliculato, elytris flavis, reticulatis, margine postice apice fasciaque angusta ad medium nigris, unguiculis parte inferiore breviore. Long. ·8—·11.

Tegrodera erosa Le Conte, Ann. Lyc. 5, 159.

San Diego; in July, abundant. Above entirely glabrous, head rufous, rounded, flattened on the disc, sparsely punctured at the sides, deeply excavated with three large furrows, the lateral ones commencing near the antennæ, and converging backwards, the middle one interrupted so as to form two oblong foveæ. Labrum slightly emarginate, black, with two large red spots, palpi black. Antennæ as long as the head and thorax, cylindrical, third joint not longer than the fourth; eyes transverse, deeply emargina[illegible]. Thorax somewhat oval, narrowed in front, obsoletely angled on the sides, d[illegible]c flattened, marked with a few large punctures, channeled, broadly impressed a[illegible]teriorly, foveate each side, broadly excavated at the middle of the base. Scut[illegible]l black. Elytra broad, sloping obliquely, so that the suture is much higher than usual, dull yellow, coarsely reticulate; the intervals between the elevated lines are fuscous behind the middle, where there is a narrow, transverse, black band, the lateral margin behind this band is black, which color becomes broader at the apex, and is gradually narrowed again at the suture. Legs black[illegible] tibiæ entirely straight, spurs of the posterior tibiæ very slender and acute. [illegible]laws of the tarsi, with the inferior part one half as long as the upper part, and closely united with it at the base.

C—i.

44. I[illegible]entat[illegible]igra, apt[illegible]unctulata, subtiliter dense pubescens, thorace [illegible]anulato [illegible]itudine [illegible]ngiore, subcanaliculato, apice et basi cinereo-[illegible] coxisque cinereo-marginatis, antennarum artic[illegible]ong. ·71.

Lytta seg[illegible]c. 3, 303.

Missouri Territory; abundant. The female is more robust than the male, and has the elytra gradually moderately dilated posteriorly, but the antennæ do not differ perceptibly from those of the male. The spurs of the tibiæ are slender and acute. I have made a slight alteration in the name given by Say, to render it grammatical.

This species seems to connect with the genus Henous *Hald.* The only difference to be found is in the elytra not being connate. I am therefore in doubt about the propriety of continuing Henous as distinct from Lytta.

Several very large specimens (·95 long) were brought from Texas by Lieut. Haldeman; at first sight they appear different, the dorsal channel being deeper posteriorly than in ordinary specimens. The thorax seems to be rather broader and more quadrate, but I cannot find any character upon which to separate them as a distinct species.

C—k.

45. L. **ochrea**, elongata, flavo-testacea, dense luteo-pubescens, thorace subcampanulato, subtiliter canaliculato, latitudine longiore, antennis nigro-piceis, articulis subconicis, 2ndo 3io vix breviore, palpis piceis. Long. ·65.

One male; New Braunfels, Texas; collected by Mr. Lindheimer. This species is similar in form to the next, but its color is not black but testaceous. The antennæ are shorter, being only one third the length of the body; the joints are conical, not elongate: the first joint is curved and reaches behind the eyes, which are more convex and prominent than in the allied species.

46. L. **immaculata**, nigra, punctulata, dense cinereo vel fulvo-pubescens, thorace subcampanulato, convexo, subcanaliculato, latitudine non longiore, tarsis antennisque nigris, his articulo 2ndo 3io æquali. Long. ·61—·85.

Say, Journ. Ac. Nat. Sc. 3, 304.

Lytta articularis Say, ibid. 3, 301.

Missouri Territory, Creek Boundary and Texas. Say has given no character for separating his two species, but suggests that they may be varieties. If he had possessed the next species, he would immediately have observed the difference in the form of the thorax. In the female the antennæ are but little longer than the head and thorax, very slender and setaceous, the first joint reaching to the posterior margin of the eyes. In the male the same organs are half as long as the body and much stouter, though setaceous; their first joint reaches beyond the eye.

47. L. longicollis, nigra punctulata, dense cinereo, vel luteo-griseo pubescens, thorace subcampanulato, postice canaliculato, latitudine sesqui longiore, elytris macula humerali parva denudata, genubus tarsis antennisque nigris, his articulo 2ndo 3io subbreviore. Long. ·9.

Missouri Territory and Santa Fe. This species is a little more slender than the last, which it closely resembles; the elongate form of the thorax and the small denuded humeral spot at once distinguish it. The antennæ in the female are one third the length of the body and setaceous, the first joint reaching a little behind the eyes which are much narrower than in the preceding. In the male the antennæ are more than half the length of the body and stouter than in the female; the first joint extends beyond the base of the head.

48. L. tenuis, valde elongata, nigra, dense cinereo-pubescens, thorace subcampanulato, canaliculato, latitudine fere sesqui longiore, tarsis antennisque nigris, his articulo 2ndo sequentibus tribus æquali, palpis pallidis. Long. ·62.

One male; Georgia. This species is easily distinguished from the next by the pale palpi and the very long second joint of the antennæ; these organs are two thirds the length of the body; the first joint extends to the base of the head. This would be C. unicolor *Kirby*, were it not for the pale palpi.

49. L. Fabricii, valde elongata, nigra, dense cinereo-pubescens, thorace subcampanulato, canaliculato, latitudine longiore, tarsis palpis antennisque nigris, his articulo 2ndo 3io longiore. Long. ·45—.55.

? Lytta cinerea ‖ Fabr. Ent. Syst. Suppl. 119; Syst. El. 2, 80.

Cantharis cinerea Harris, Ins. Injurious to Vegetation, 122: Bost. Journ. Nat. Hist. 1, 497.

Atlantic States and Missouri Territory; abundant. The antennæ in both sexes are half the length of the body; in the female the first joint reaches behind the eye, and the second joint is one half longer than the third, in the male they are thicker, the first joint reaching to the base of the head, and the second joint is twice as long as the third. Fabricius' description is worthless, and his name pre-occupied by Forster. *C. sericea* Olivier, quoted by Fabricius as synonymous, is described as having the antennæ short, and as being found in Barbary.

One small male (·3 unc. long) from Missouri Territory, differs in having shorter and stouter antennæ, the intermediate joints being scarcely one half longer than wide, the first only reaches half the distance between the eye and the back of the head; a female from the same locality also differs from the type in having less slender antennæ; these may probably belong to a different species, but as these characters seems light, I forbear naming it for the present.

50. L. torsa, valde elongata, sat dense tenuiter cinereo pubescens. thorace subcampanulato latitudine non longiore, canaliculato, tarsis palpis antennisque nigris, his articulo 2ndo longiore, sequentibus subobconicis. Long. ·45.

One male from Texas; Lieut. Haldeman. In specific characters this comes very near to the next species, but the pubescence is more abundant, and the punctuation of the elytra much finer. The sexual characters are very remarkable; the first joint of the antennæ is as long as the head, thickened, and suddenly bent at an obtuse angle about the middle, and then slightly curved outward towards the tip; the second joint is nearly as long as the three following, which are triangular; the following joints are gradually narrower to the extremity.

From the differences noted under the other allied species, it is probable that many closely related species are found in different parts of the country, the spe

cific characters of which cannot be made clear until the sexual variations are known.

[illegible] rina, nigra, distinctius punctata, parcius cinereo-pubescens, tho[illegible]sculo, campanulato, subcanaliculato, latitudine non longiore, palpis [illegible]igris, his articulo 2ndo longiore. Long. ·4—·45.

[illegible]ior; two males. Easily distinguished by its more sparse pubes[illegible]orax is shorter, more convex, and more narrowed anteriorly, and [illegible]face is more distinctly punctured; the antennæ are half the length [illegible] the first joint reaching the occiput, the second joint equal to the tw[illegible]. With this species I doubtfully associate a female from Misso[illegible]ry, agreeing in form and punctuation, in which the antennæ are a litt[illegible]outer than in C. Fabricii, with the second joint about one-third longer than the third.

52. C. debilis, valde elongata, atra, punctulata, cinereo-pubescens, thorace subcampanulato, latitudine [illegible]culato, basi profunde foveato, palpis antennisque nigris, his (femi[illegible]rticulo 2ndo 3io longiore. Long. ·35.

Two females; New York. [illegible]s resembles closely C. Fabricii, but the thorax is less rounded in front [illegible] dorsal channel is deeply transversely excavated at the base; the anten[illegible]lf the length of the body and formed exactly as in C. Fabricii. The [illegible]e is less dense than in C. Fabricii, but more dense than in the last species.

The following species are unknown to m[illegible]:

53. Cantharis lineata Olivier, I[illegible]s. 46, 14, tab. 2, fig. 21, (apparently resembles C. Germari).

54. Lytta Afzeliana Fabr. Syst. El. 2, 78. (1801).
Cantharis sinuata Oliv. Ins. 46, 9, tab. [illegible], fig. 14. (1795).

55. Lytta sphæricollis [illegible]rn. Ac. Nat. Sc. 3, 299; Am. Ent. 1, 3. A fragment in Dr. Melshei[illegible]lection, belongs to L. filiformis *Lec.*, but the disc of the thorax is des[illegible]d in other respects it does not agree with Say's description.

56. Lytta albida Say, ibid. 3, 305; Am. Ent. 1, 3.

57. Lytta reticulata Say, ibid. 3, 305.

58. Lytta sanguinicollis, atra, pubescens, capite thoraceque læte rufis, elytris nigris sutura margine vittaque angusta cinereis. Long. ·27.

Georgia; rare. The description is made from a drawing. It is the Epicauta sanguinicollis of Dejean's Catalogue.

59. Cantharis unicolor Kirby, Fauna Bor. Am. 241. Allied to L. Fabricii.

60. Meloe trichrus Pallas, Icon. Ins. Ross. 100. tab. E. fig. 32.

TETRAONYX Latr.

1. T. quadrimaculata, læte flava, confertim punctata subtiliter dense pubescens, capite nigro, elytris confertissime punctulatis, triente postico maculaque utrinque magna basali quadrata nigris, antennis pedibusque nigris, femoribus flavis apice nigris. Long. ·4.

Latreille, in Cuv. Règne Animal.

Apalus quadrimaculatus Fabr. Ent. Syst. 2, 50; Syst. El. 2, 25.

Southern States; rare. The male is distinguished by having the anterior tarsi dilated, and the first joint prolonged internally.

2. T. fulva, fulva, nitidiuscula, longius pubescens, minus confertim punctata, corpore antennisque nigris, pedibus fulvis, genubus tibiarum apice tarsisque nigris. Long. ·3—.4.

New Mexico; collected by Fendler. This species is similar to T. frontalis *Chevr.* (Col. Mexique,) but is much smaller; the head is entirely fulvous, and the feet are not black; the pubescence is less dense, and the punctures of the

elytra are more distinct and not very dense. The anterior tarsi of the male are dilated as in the preceding.

Nemognatha *Ill.*

Our species are much more numerous than commonly supposed, and from the strong resemblance in appearance one might be tempted at first to consider many as mere variations in color. As will be seen in the sequel, however, the differences are organic, and the species may be grouped in a manner very similar to that employed under Lytta. Division (B) seems to correspond with Kirby's genus *Gnathium*, but I can find no character sufficiently important to entitle it to rank with the other genera of the family.

A. Maxillæ valde elongatæ.
  a. Tibiæ posticæ calcaribus duobus latis obtusis . . Sp. 1.
  b. Tibiæ posticæ calcari altero crasso obtuso, altero tenui . Sp. 2—5.
  c. Tibiæ posticæ calcaribus duobus tenuibus :
    * Calcari externo latiore apice rotundato . . . Sp. 6—10.
    ** Calcaribus duobus acutis . . . . . . Sp. 11—15.
B. Maxillæ corpore multo breviores; ore valde attenuato.
  d. Elytra nitida, parce punctata . . . . . . Sp. 16—17.
  e. Elytra scabro-punctata . . . . Sp. 18—21.

A.—a.

1. N. **bicolor**, nigra, breviter nigro-villosa, capite thoraceque rufis confertim punctatis, hoc transverso, elytris subtiliter confertim punctatis. Long. ·45.

Missouri Territory. Head triangular, rufous, densely and strongly punctured, villous with short black hair; clypeus, labrum and organs of the mouth black. Antennæ black, 2d joint two-thirds as long as the 3d. Thorax rufous, wider than the head, one half wider than long, slightly narrowed in front, sides straight, angles rounded, disc villous and densely punctured like the head. Scutellum black. Elytra black, more densely and finely punctured than the head and thorax, and in like manner villous with black hair. Beneath black; spurs of the posterior tibiæ flat and obtuse, the outer one a little broader.

A.—b.

2. N. **lurida**, luteo-testacea, parce flavo villosa, thorace transverso, confertim punctato, subcanaliculato, lateribus antice rotundatis, elytris subtilius confertim punctatis, antennis palpis tibiis tarsisque nigris. Long. ·55.

Missouri Territory, on Platte River. Brownish yellow, sparsely clothed with fine yellow hair. Head triangular, closely punctured, maxillæ, palpi and tip of the mandibles black; antennæ black, 2d joint half as long as the 3d. Thorax one half wider than long, slightly narrowed anteriorly, and rounded on the sides; closely punctured, obsoletely channeled behind the middle. Scutellum finely punctured, impressed. Elytra finely and tolerably densely punctured. Beneath yellow, femora slightly fuscous at tip; tibiæ and tarsi almost black; posterior tibiæ with the outer spur thick, cylindrical and concavely truncate at tip; inner one very small, flat, rounded at tip.

A specimen from Texas agrees in form with those from Missouri Territory, but the body is darker beneath, and the hairs of the upper surface are apparently black; it very evidently does not belong to the next species, from which it differs both by the form of the thorax and the yellow femora; the specimen is so imperfect that I cannot point out any other differences.

3. N. **apicalis**, luteo-testacea, nigro-villosa, thorace punctato, transverso, lateribus antice rotundatis, elytris subtilius confertim punctatis, apice nigricantibus, scutello, antennis, palpis, pectore abdominis basi, pedibusque nigris. Long. ·4—·5.

Two specimens from Benicia, California, and one from Texas, collected by Mr. Lindheimer. Differs from N. lurida by the black villosity, as well as by the arrangement of colors; the thorax is scarcely wider than long, and is more coarsely punctured; the elytra are blackish towards the apex. The spurs of the posterior tibiæ are as in the last species.

One of the California specimens has the abdomen entirely black.

4. N. pallens, pallide flava, antennis tarsisque nigris, thorace transverso, parce punctato, lateribus antice rotundatis, elytris minus dense subtilius punctatis breviter flavo-pubescentibus. Long. ·36.

One specimen from Vallecitas, in the southern part of California. This species is sufficiently distinct by the diagnosis given. I will merely add that the head is slightly fuscous; the apex of the mandibles and palpi is black; the first joint of the antennæ is yellow, the rest are black, the 2d is one half the length of the third; the spurs of the posterior tibiæ are as in the two preceding.

5. N. lutea, luteo-testacea, thorace transverso, lateribus antice rotundatis, parce punctato, elytris confertim punctatis flavo pubescentibus; subtus plus minusve infuscata, antennis tarsisque nigris. Long. ·4—·5.

Missouri Territory, common. Head triangular, moderately punctured, sparsely pubescent with yellow hair; mandibles, palpi and maxillæ black; antennæ black, 2d joint two-thirds as long as the third. Thorax transverse, rounded on the sides anteriorly; disc polished, very sparsely punctured. Scutellum sometimes dusky. Elytra densely somewhat rugosely punctured, pubescent with short yellow hair. Body beneath fuscous, anterior and middle thighs, and tip of the abdomen yellow; tarsi black; posterior tibiæ with the outer spur less thick than in the preceding species; inner spur nearly as long as the outer one, slender, flattened, rounded at tip.

A.—c*.

6. N. dichroa, supra luteo-testacea, thorace transverso, lateribus antice rotundatis, parce punctato, elytris minus subtiliter sat dense punctatis, scutello antennis corpore subtus, pedibusque nigris, ano luteo. Long. ·38.

One specimen from Oregon, Col. M'Call. The pubescence has been entirely removed by alcohol. This species very much resembles the preceding, but the punctuation of the elytra is coarser, and the legs are entirely black. It forms, with the next species, a transition between the two groups; the outer spur of the posterior tibiæ, though cylindrical and obliquely truncate, is very little thicker than the inner spur.

7. N. dubia, nigra, nigro-pubescens, thorace modice transverso, antice vix angustato et lateribus rotundato, parce punctato, elytris rugose punctatis. Long. ·4.

Variat thorace capiteque læte fulvis. Long. ·35.

Benicia, two specimens. This species closely resembles the preceding, but the color is very different, the elytra are more finely punctured, and distinctly rugous. The specimen having red head and thorax, may eventually prove to be a distinct species; the thorax is not narrowed anteriorly in it, and therefore appears more quadrate. The outer spur of the posterior tibiæ is slender, cylindrical, and truncate obliquely.

8. N. palliata, nigra, nigro-villosa, supra fulvo-testacea, thorace transverso, sat dense punctato, antice subangustato, lateribus rectis, elytris subtilius punctatis, vitta utrinque lata scutelloque nigris. Long. ·5.

One specimen from the upper Mississippi. In the form of the thorax this species resembles of the preceding only N. bicolor; the apex is, however, more oblique each side. Body and all the appendages black: above reddish testaceous, with short black hair: head triangular, not elongated, tolerably densely punctured; thorax one half wider than long, slightly narrowed anteriorly, sides not rounded; apex oblique each side, so that the anterior angles although obtuse and rounded, are distinct: disc moderately punctured, slightly channeled behind the middle. Scutellum black, punctured. Elytra finely punctured, with a broad discoidal black vitta reaching from near the base to the apex. Antennæ with the 2d joint three fourths the length of the 3d; posterior tibiæ with the outer spur flat, a little broader than the inner one, and obtuse.

9. N. piezata, nigra, nigro-villosa, capitis basi thoracisque lateribus piceo-testaceis, hoc sat dense punctato, transverso, lateribus rectis, elytris dense subtilius punctatis, vitta utrinque lata nigra notatis. Long. ·4.

Zonitis piezata Fabr. Ent. Syst. Suppl. 104; Weber, Obs. Ent. 60, (1801;) Coquebert, Illustr. tab. 29, f. 5.

One specimen, Georgia. The black on the head and thorax fades insensibly into piceous and testaceous; the anterior portion of the thorax also is testaceous; the apex is obliquely rounded, so that the anterior angles are very much less distinct than in the last species; the outer spur of the posterior tibiæ is very little thicker than the inner one, flattened and slightly obtuse.

Without any apparent cause, the name of this species is suppressed in the Syst. Eleuth. (2, 24,) and *Zonitis vittata* substituted. Of course under these circumstances, the latter name is inadmissible.

10. N. texana, luteo-testacea, nigro-villosa, thorace subtransverso, lateribus rectis, sat dense punctato, elytris subtilius dense punctatis, antennis tarsisque nigris, tibiis infuscatis. Long. ·4.

One specimen, Texas, Lieut. Haldeman. This species resembles very much in appearance those of the preceding division, but the outer spur of the posterior tibiæ is very little thicker than the inner ones, flat and slightly obtuse. The apex of the thorax is rounded, so that the anterior angles are not decidedly marked; the apex of the mandibles, the palpi and maxillæ are piceous; the 2d joint of the antennæ is three-fourths as long as the third.

A.—c**.

11. N. decipiens, supra luteo-testacea, parce nigro-pubescens, thorace subtransverso, lateribus antice rotundatis, sat dense punctato, elytris confertim punctatis, scutello, antennis, pedibus corporeque subtus nigris; ano testaceo. Long. ·5.

One specimen, Oregon, Col. M'Call. In form and sculpture this species exactly resembles N. lurida, but the color of the scutellum and under surface is different. The spurs of the posterior tibiæ are equal and slender.

12. N. punctulata, supra luteo-testacea, capite dense subtiliter punctato, occipite tumido, thorace transverso, lateribus rectis, parce punctato, elytris subtilius confertissime punctulatis vitta utrinque lata nigra; subtus picea, pedibus flavis, genubus, tarsis, antennisque nigris. Long. ·45—·55.

Three specimens, Georgia. Very distinct by its densely punctured head, flattened front, swelled occiput, and finely punctulate elytra. The spurs of the posterior tibiæ are equal, slender and acute.

13. N. nigripennis, læte rufo-testacea, nigro-villosa, antennis pedibus elytrisque confertim punctulatis nigris, thorace subtransverso, lateribus antice rotundatis, sat dense punctato. Long. ·3—·42.

Variat femoribus flavis, apice nigris.

Santa Fe, New Mexico, Mr. Fendler. Body rufo-testaceous, villous with black hair. Head convex, triangular, densely punctured. Thorax a little wider than long, sides parallel, rounded in front, disc convex, moderately punctured. Elytra densely and finely punctured, somewhat rugous, black. Scutellum rufous or piceous. Antennæ black, second joint scarcely one half as long as the third; tip of mandibles, palpi and maxillæ piceous. Legs piceous black, in one specimen the femora are yellow with the apex black; spurs of the posterior tibiæ slender, acute and equal.

14. N. scutellaris, nigra, parce nigro-pilosa, supra lutea, capite thoraceque minus dense grosse punctatis, hoc transverso, lateribus non rotundato, elytris rugosis vix obsolete punctatis, margine postice scutelloque nigris. Long. ·28.

One specimen, collected at Sacramento, California, by Mr. J. Child, and given me by Mr. S. S. Rathvon. Body black, above luteous, thinly clothed with black hair. Head triangular, piceous, with a large luteous occipital spot; coarsely punctured; antennæ with the 2d joint only one third as long as the 3d; thorax luteous, nearly twice as wide as long, sides parallel, disc coarsely punctured;

scutellum black; elytra luteous, irregularly rugose, with scarcely any appearance of punctures; margin posteriorly and at the apex blackish. Spurs of the posterior tibiæ very slender and acute. Maxillæ about half the length of the body.

15. N. nemorensis, nigra, villosa, capite medio, mandibularumque basi testaceis, thorace transverso, postice subangustato, confertim punctato, flavo, fusco bi- vel tri-guttato; elytris subtiliter punctulatis. Long. ·25.

Hentz, Trans. Am. Phil. Soc. 3, 258.

N. bimaculata Mels. Pr. Ac. Nat. Sc. 3, 54.

Alabama and New York, rare. For a variety from the Hentz collection, without thoracic spots, I am indebted to S. S. Haldeman. This species establishes a passage to the next division of the genus. The maxillæ are only half as long as the body, as in the preceding species, and the head is shorter than usual, as in N. palliata; the 2d joint of the antennæ is half as long as the 3d.

B.—d.

16. N. cribraria, nigra nitida, parce nigro-villosa, capite parce punctato, gutta frontali testacea, thorace transverso, lateribus antice rotundatis, parce punctato, flavo, fusco binotato, elytris flavis, parce grosse punctatis, macula apicali scutelloque nigris, abdomine testaceo. Long. ·27.

One specimen, Sta. Fe, Mr. Fendler. Head elongated, with the mouth strongly produced; fuscous or blackish, strongly punctured, vertex testaceous; antennæ with the 2d joint very small; maxillæ about half the length of the body. Thorax yellow, one half wider than long, sides parallel, anteriorly rounded, disc sparsely punctured, with two fuscous spots towards the base. Scutellum black. Elytra shining yellow, sparsely and coarsely punctured, punctures becoming smaller towards the apex; bright yellow, with a large apical black spot; thinly clothed with short black hair. Beneath black, abdomen testaceous, with the base fuscous. Posterior tibiæ with both spurs very slender and acute.

17. N. immaculata, virescenti-flava, nitida, glabra, thorace quadrato, non transverso, angulis anticis rotundatis, vix punctato, elytris parce cribroso-punctatis, antennis genubus tarsisque nigris. Long. ·4.

Say, Journ. Ac. Nat. Sc. 2, 22. Am. Ent. pl. 3.

Two specimens, Sta. Fé. Mr. Fendler. The maxillæ in this species are only one fourth as long as the body; the second joint of the antennæ is more than half as long as the third; the first is indistinctly testaceous. The spurs of the posterior tibiæ are small and acute.

B.—e.

18. N. vittigera, testacea, parce flavo-pubescens, thorace vix transverso, confertim punctato, lateribus parallelis antice rotundatis, elytris confluenter punctatis, vitta utrinque dilatata infuscata, antennis, palpis, genubus, tibiis tarsisque nigris. Long. ·4.

One specimen, Georgia. Body testaceous, with a few yellow hairs. Head densely punctured, triangular, mouth elongated, palpi and maxillæ blackish, the latter about one fourth as long as the body; last joint of the palpi nearly twice as long as the penultimate. Antennæ black, second joint about half as long as the third. Thorax scarcely wider than long, sides almost straight, apex rounded. so as to include a small portion of the sides; disc densely punctured. Elytra scabrous with confluent punctures, each with a broad brownish vitta extending from near the base to the apex. Beneath testaceous, knees, tibiæ and tarsi black; spurs of the posterior tibiæ short, the outer one broad, obtuse and rounded, the inner one narrower, but also obtuse.

19. N. cribricollis, testacea, vix pubescens, thorace subtransverso, lateribus rotundatis, confertim cribroso, elytris confluenter punctatis, antennis tarsisque nigris, tibiis versus apicem infuscatis. Long. ·28.

One specimen, Texas, Lieut. Haldeman. Sufficiently distinct by the strongly and densely punctured thorax. The antennæ and tibial spurs as in the last species; the maxillæ are not longer than the head; the mouth is very much prolonged, and the last joint of the maxillary palpi longer than the preceding.

20. N. porosa, testacea, vix pubescens, thorace subtransverso, lateribus rotundatis, parce grosse punctato, elytris confluenter punctatis, antennis nigris, tibiis tarsisque fuscis. Long. ·24—·29.

Two specimens, Georgia; in one of them the elytra are brownish, leaving only a narrow marginal suture and base testaceous. In structure and color resembles exactly the last species, but differs in the sparse punctuation of the thorax.

21. N. fuscipennis, fusca, capite thoraceque testaceis, dense minus subtiliter punctatis, hoc rotundato, elytris confluenter punctatis, antennis nigris, femoribus plus minusve testaceis. Long. ·19—·27.

St. Louis, Missouri, Dr. Engelman. This species also, in the form of antennæ, palpi, maxillæ and tibial spurs resembles the two preceding, but differs in the form of the thorax, which is nearly round; the abdomen and thighs vary in color, being sometimes testaceous and sometimes fuscous.

The following species are unknown to me:

22. N. minima *Say*, Journ. Acad. Nat. Sc. 3, 3, 306.

23. N. calceolata *Guerin*, Icon. Règne An. 136. "Reddish, finely granulate, antennæ, eyes, palpi, tip of mandibles, maxillæ, base of femora, tibiæ and tarsi black. Long. 10 mill.; lat. 3½ mill." This may probably be allied to N. lurida *Lec.*, but as no essential character is expressed in the description, it is impossible to recognise the species.

24. Gnathium Francilloni *Kirby*, Linn. Tr. 12, 424, tab. 22, fig. 6. The genus is said to have the mandibles elongated, and the antennæ thickened externally; the first character is possessed by all the species of Nemognatha in (B—e); the second character I have not observed in any species.

ZONITIS *Fabr.*

1. Z. atripennis, læte flavo-testacea nitida, thorace non transverso, lateribus antice rotundatis, minus dense punctato, elytris nigris brevissime pubescentibus grosse parce punctatis, pectore tibiisque infuscatis, antennis tarsisque nigris. Long. ·25—·43.

Nemognatha atripennis Say, Journ. Acad. Nat. Sc. 3, 306.

Missouri Territory and Santa Fe. The mouth is more prolonged than in the other species, but the maxillæ are destitute of the thread-like extension found in Nemognatha. The second joint of the antennæ is equal to the first, and shorter than the third. The spurs of the posterior tibiæ are slender, the outer one a little longer and obtuse.

2. Z. flavida, flava, nitida, thorace non transverso, lateribus antice rotundato, minus dense punctato, elytris brevissime pubescentibus parcius grosse punctatis, tibiarum apice, genubus tarsisque fuscis, antennis nigris. Long. ·4.

Santa Fe, New Mexico. Mr. Fendler. In form and sculpture resembles the preceding. One specimen has a large black blotch at the apex of the elytra. It is possible that a larger series of specimens may prove the necessity of uniting this with the preceding species.

3. Z. bilineata, testacea, thorace subtransverso, quadrato, angulis rotundatis, parce punctato, elytris rugose punctatis, pallidis, vitta utrinque fusca, sæpe obsoleta, pectore, tibiis, scutelloque plus minusve infuscatis, antennis nigris. Long. ·3—·35.

Say, Journ Acad. Nat. Sc. 1, 22.

Z. lineata Mels. Proc. Acad. Nat. Sc. 3, 53.

Z. mandibularis Mels. ib.

Middle and Western States, rare. I procured a fine series of this species at Fort Snelling, Minnesota. The elytral vitta is slightly abbreviated at base and apex; it is sometimes very broad. The under surface is sometimes uniform testaceous; the pectus, the knees and the tips of the tibiæ are usually fuscous; the tarsi are always testaceous; the scutellum is occasionally nearly black. The tips of the mandibles and the antennæ are black; the second joint of the latter is half as long as the third.

HORIA *Fabr.*

H. sanguinipennis, elongato-oblonga, aptera, atra, nigro-pubescens, scabro-punctata, antennis capite thoraceque plus sesqui longioribus, elytris pallide sanguineis, humeris obsoletis. Long. ·3—·35.

Say, Journ. Acad. Nat. Sc. 3, 279.

Massachusetts; Dr. Harris. Found in sandy places in early spring. The ventral segments of one sex (female ?) are furnished in the middle with a broad black velvety patch of hair; in the other sex this is wanting.

2. H. Stansburii, elongata, atra, alata, nigro-pubescens, scabro-punctata, antennis capite thoraceque vix longioribus, versus apicem attenuatis, elytris sanguineis, fortius punctatis, humeris distinctis. Long. ·39—·5

Haldeman, Stansbury's Expedition to Great Salt Lake, 377.

Two specimens brought from Utah by Capt. Stansbury. For an opportunity of examining them I am indebted to Prof. Haldeman.

Although so different in form from the preceding, this species exhibits a remarkable parallelism of structure. In the head and thorax there is absolutely no difference to be perceived. The antennæ are shorter and much more attenuated externally; the body being provided with wings, the humeri become prominent, while in the preceding apterous species they are obsolete, or very broadly rounded. The larger specimen has a round patch of black velvety hair on the middle of each ventral segment of the abdomen.

CEPHALOON *Newman.*

1. C. lepturides, valde elongatum, utrinque attenuatum, subtiliter punctulatum et pubescens, testaceum vel fuscum, thorace plus minus fusco variegato, lateribus subsinuatim rotundatis, angulis posticis prominulis, antennis pedibusque testaceis, pedibus posticis plus minus infuscatis. Long. ·36—·4.

Newman, Ent. Mag. 5, 377; Hald. Journ. Acad. Nat. Sc. 2d ser., 1, 95.

Lake Superior, not rare. This species varies very much, some of the specimens being very dark fuscous: the head and thorax are, however, always varied with testaceous; the sides of the thorax are slightly sinuous from the prominence of the posterior angles.

Although considered by Newman as belonging to the Œdemeridæ, this singular genus seems to me better placed as an anomalous genus of the Cantharidæ. The appendages between the claws of the tarsi are not found in Œdemeridæ, while in this tribe they have their analogues in Zonitis, Horia and Nemognatha, though in the present genus they are much larger and obtuse; the mandibles are slender and acute at the apex, as in the genera just mentioned.

2. C. varians, valde elongatum, utrinque attenuatum, subtiliter punctulatum, et pubescens, fuscum, antennis pedibusque testaceis, thorace lateribus late rotundatis, angulis posticis non prominulis. Long. ·35.

Haldeman, Journ. Acad. Nat. Sc. 2d, 1, 95.

One specimen from Maine, Mr. Brevoort. This species only differs from the dark colored varieties of the preceding by having the posterior angles of the thorax less prominent, so that the sides are not sinuate; the head and thorax are entirely fuscous above, and testaceous beneath.

Synopsis of the Atopidæ, Rhipiceridæ and Cyphonidæ of the United States.

By JOHN L. LE CONTE, M. D.

A large mass of pentamerous serricorn Coleoptera may be distinguished by having the anterior coxæ inserted in deep acetabula between the pro- and mesosternum, and the prosternum although sometimes very narrow, entirely corneous. The abdomen has five visible ventral segments, except in Cebrionidæ, where the 5th is truncate and the 6th exserted. This portion may be divided as follows:

A. Coxæ anticæ globosæ.

Abdomen articulis 2 primis connatis . . . . . . Buprestidæ.
Abdomen articulis omnibus liberis, 5to rotundato . . Elateridæ.
Abdomen articulis omnibus liberis, 5to truncato . . . Cebrionidæ.

B. Coxæ anticæ magnæ transversæ.

Coxæ anticæ transversæ, trochantino magno . . . Atopidæ.
Coxæ anticæ conicæ, prosterno brevi, mesosterno protenso . Rhipiceridæ.
Coxæ anticæ conicæ, prosterno integro, mesosterno simplici . Cyphonidæ.

The first two families under (A.) are very extensive, and must form the subject of special essays. In the Elateridæ I include both Eucnemides and Throscites, as those groups do not appear sufficiently distinct to rank as families. There are also strong reasons for considering the Cebrionidæ as a group of the same value. In them the anterior acetabula are more confined to the prothorax than in the remaining three families, which are small in extent, and will be now considered.

ATOPIDÆ.

Coleoptera pentamera, antennis serratis, 11-articulatis, articulo 2do brevi; ligula quadrifida; coxis anticis transversis non prominulis, trochantino magno, conspicuo, in acetabulis e prosterno et mesosterno compositis pro unde insertis; prosterno corneo, postice prolongato; mesosterno concavo; abdomine segmentis 5 ventralibus liberis; tarsis articulo 1mo 5toque elongatis, hoc paranychio parvo bisetoso.

1. Tarsi elongati simplices, ungues integri.

Antennæ approximatæ, fronte elongata angusta, clypeo nullo . . . . Ectopria *Lec.*
Antennæ distantes; palpi maxillares cylindrici . . Stenocolus *Lec.*
Antennæ distantes; palpi maxillares dilatati . . Anchytarsus *Guér.*

2. Tarsi elongati, ungues serrati . Odontonyx *Guér.*

3. Tarsi articulis intermediis dilatatis, ungues integri.

Antennæ distantes, art. tarsorum 1—4 subtus lobatis . Dascillus *Latr.*
Antennæ approximatæ, art. tarsorum 2—4 breviter lobatis Eurea *Lec.*

Stenocolus, Anchytarsus, Dascillus and Odontonyx are sufficiently explained at p. 229 of the present volume. I must add, however.

1. To the synonyms of Anchytarsus bicolor, must be placed *Elodes debilis* Ziegler, Proc. Ac. Nat. Sc. 2, 269.

2. To Odontonyx ornata *Guer.*, Schaum refers *Dasytes trivittis* Germar, Ins. Nov. 76. The species must therefore be called Odontonyx trivittis *Schaum*, (Bericht. Entom. 1849.)

ECTOPRIA *Lec.*

Antennæ basi approximatæ, elongatæ, articulo 1mo crasso, 2 et 3 minutis, 4—10 triangularibus, gradatim subangustioribus, 11mo ovali. Frons angusta, elongata; labrum rotundatum, mandibulas obtegens; palpi filiformes, maxillares elongati, labiales breviusculi. Pedes tenues, tarsi filiformes, articulis 1mo et 5to elongatis, intermediis coniunctis æqualibus, his gradatim paulo brevioribus, ungues parvi simplices; tibiæ calcaribus apicalibus obsoletis.

The body is short, convex, narrowed in front: the thorax is transverse and trapezoidal, with all the angles acute: the prosternum is produced posteriorly, and the mesosternum is concave. The species live on bushes near water.

1. E. thoracica, atra, subtiliter pubescens, thoracis lateribus tarsisque flavis. Long. ·15.

Eubria thoracica Ziegler, Proc. Acad. Nat. Sc. 2, 269.

Georgia and Pennsylvania, on plants near water. This very pretty little insect continues still farther the affinity between Atopidæ and Paraidæ, referred to under Stenocolus (p. 229.) To the genus Eurypalpus *Lec.* it shows strong resemblance in general form, and to some extent in details of structure, but differs in the number of abdominal segments, and in the form of the head, as well as in the elongation of the first tarsal joint.

In the male the antennæ are larger and almost pectinate, and the sides of the thorax are sinuate; in the female the antennæ are strongly serrate, and the sides of the thorax are broadly rounded.

2. E. tibialis, atro-fusca, subtiliter pubescens, thoracis lateribus obsolete piceo-testaceis, tibiis tarsisque flavis. Long. ·15.

Pennsylvania, Dr. Melsheimer. This species is very similar to the preceding; it is, however, more dilated posteriorly, and the depression each side at the base of the thorax is less deep. The sides of the thorax above and beneath, and the tip of the abdomen, are indistinctly testaceous; the tibiæ and tarsi are pale yellow, while in the preceding, as in the next species, the tibiæ are black. The sides of the thorax in the male are nearly straight, in the female they are broadly rounded.

3. E. tarsalis, atra subtiliter pubescens postice minus dilatata, thorace postice utrinque latius profunde impresso, margine tenui antico, tibiarum basi tarsisque testaceis. Long. ·15.

One specimen, Georgia. This species is more oblong than either of the others. The sides of the thorax are slightly rounded towards the base, and not at all testaceous; the anterior margin is narrowly bordered with testaceous; the basal impressions are large and deep, so that the whole region of the anterior angles appears depressed; the elytra, as in the two preceding species, are coarsely, not deeply punctured; at the base they are a little wider than the base of the thorax; posteriorly they are about one fifth wider than at the base; the legs are black, the base of the tibiæ and the tarsi testaceous; the prosternum is pale testaceous.

Eubria *Lec.*

Antennæ basi approximatæ, articulo 1mo cylindrico 2do (2 et 3 ?) parvo rotundato, sequentibus longioribus triangularibus. Frons angusta deflexa, apice emarginata. Labrum rotundatum, mandibulas obtegens; palpi filiformes, maxillares elongati. Pedes tenues, tibiarum calcaribus obsoletis: tarsi articulo 1mo elongato, 2—4 brevibus, subtus breviter lobatis, unguiculari præcedentibus tribus æquali, unguibus parvis, integris.

The body is very broad, subquadrate and moderately convex; the thorax very short, strongly narrowed in front, with the angles acute, and the sides broadly rounded. The head is small and deflexed, the eyes entire; the prosternum is posteriorly produced, and rounded at the extremity, the mesosternum is scarcely concave.

E. nervosa, atra, subtiliter cinereo-pubescens, scutello, elytrorumque lineis paucis subreticulatis distinctius cinereis, prosterno testaceo, tarsis flavis. Long. ·17; lat. ·11.

Eubria? nervosa Mels. Proc. Ac. Nat. Sc. 2, 222.

Pennsylvania; a typical specimen of this very rare insect was given me by Dr. Melsheimer. The antennæ are, unfortunately, broken, so that, not knowing the number of long joints, I cannot determine whether the small round mass following the basal joint should be considered as a single joint, or two joints closely united.

RHIPICERIDÆ.

Coleoptera pentamera, antennis flabellatis, rarius serratis, sub frontis margine ante oculos insertis, coxis anticis conicis, prominulis, acetabulis inter pro- et mesosternum receptis, prosterno corneo, inter coxas angusto, abbreviato, ad mesosternum antice extensum applicatum; abdomine segmentis ventralibus 5 liberis; tarsis articulo ultimo elongato, paranychio magno, dense setoso.

Of this little family we have but two genera within our limits; in both of them the antennæ are 11-jointed. In Sandalus the joints of the tarsi are lobed

eneath, in Zenoa they are without lobes. Zenoa is also remarkable for its protuberant front, and less exserted mandibles.

CYPHONIDÆ.

Coleoptera pentamera, antennis 11-articulatis, rarius biramosis, minus approxinatis; ligula emarginata; coxis anticis conicis prominulis, acetabulis inter pro- et esosternum receptis; prosterno corneo, inter coxas angustissimo, non abbreiato; mesosterno nec concavo, nec protenso; abdomine segmentis ventralibus liberis; coxis posticis plus minusve laminatis; tarsi articulo 4to præcipue ilobato, ultimo brevi, unguibus parvis integris.

A. Tarsi articulo 4to bilobo:
  Tarsi omnes articulo 3io distincto; (thorax non clypeatus.)
    Tibiæ calcaribus obsoletis . . . . . . Helodes *Latr.*
    Tibiæ calcaribus elongatis armatæ . . . . Scirtes *Illiger.*
  Tarsi postici articulo 3io vix distincto; (thorax clypeatus) . . . . Sacodes *Lec.*
B. Tarsi filiformes, tibiæ calcaratæ . . . . Eucinetus *Schupp.*

HELODES *Latr.* (Elodes,) 1796.

Cyphon Fabr. 1798.

From the genus as defined by Guérin in his very beautiful monograph, conained in the "Species et Iconographie générique des Animaux Articulés," I ave removed certain species having the thorax extended over the head, to form new genus Sacodes. The remaining species may be grouped in the following anner:

a. Antennæ articulo 1mo dilatato, 2 et 3io parvis, hoc minutissimo . . . . Sp. 1.
b. Antennæ articulis 2 et 3 parvis, illo maiore . . . Sp. 2—4.
c. Antennæ articulis 2 et 3 sequentibus paulo brevioribus . Sp. 5—12.

a.

1. H. discoidea, oblongo-ovalis, modice convexa, rufo-flava, pubescens, lytris dense punctatis macula maxima nigra communi notatis. Long. ·16—·18.

Guérin, Spec. et Icon. An. Art. No. 9, p. 9.

Cyphon discoidus Say, Journ. Ac. Nat. Sc. 5, 161.

Georgia, Pennsylvania and Missouri. The antennæ of the male are biramose, he third and following joints being furnished with two long cylindrical basal rocesses. The suture of the elytra is frequently yellow, so as to divide the arge black spot. The male is very rare; the only specimen seen by me was indly given me by Dr. Melsheimer.

b.

2. H. concinna, elongato-ovalis, minus convexa, nigra, tenuiter griseoubescens, thorace punctulato, elytris dense punctatis, læte rufis, basi trienteque ostico nigris. Long. 16.

San Francisco, California, June. Body oblong, very distinctly convex, ounded at each end, black, sparsely pubescent. Head scarcely punctured; ntennæ half as long as the body, entirely black, 2d and 3d joints nearly equal, gether scarcely two thirds the length of the 4th joint. Thorax nearly three mes wider than long, emarginate in front, very slightly rounded on the sides, roadly rounded at the base, surface finely punctulate. Elytra one third wider an the thorax, almost parallel, tolerably densely punctured, with very faint aces of two lines; black, with a very broad transverse red band, extending om near the base to within one third of the apex, and being a little dilated wards the suture; epipleuræ, under surface and feet black.

3. H. ruficollis, oblongo-elongata, atra pubescens, thorace subtilissime unctulato, rufo sæpe nigro notato, vel nigro elytris densius punctatis, obsoletisme tricostatis, tibiis tarsisque testaceis, antennis basi plus minusve testaceis, rticulis 2 et 3io coniunctis 4to duplo brevioribus. Long. ·15.

Lampyris ruficollis Say, Journ. Ac. Nat. Sc. 5, 162.
Elodes fragilis Ziegler, Proc. Ac. Nat. Sc. 2, 269.
Elodes marginicollis Guérin, Spec. et Icon. An. Art. No. 9, p. 3.

Middle and Southern States: two specimens from Missouri Territory have the feet entirely rufous, but otherwise do not differ. One specimen with entirely black thorax was found by me in Georgia; I am strongly inclined to believe that this last variety is H. oblonga *Guérin*, which, however, is said to have the 3d joint of the antennæ less than half the size of the second. Where both the second and third joints are small, it is difficult to determine their relative proportions, and on this account too great reliance should not be placed on the characters given by Guérin in his division of the genus into groups.

It is certain that this insect must be Say's *Lamp. ruficollis*, as we have no other that will agree with his description; from H. collaris and bicolor it differs in having the thorax always slightly dusky in front; Say's observation that the species has not the power of giving light, added to the fact that the thorax is not produced over the head, point conclusively to the present genus.

4. **H. pallipes**, oblongo-ovalis, atra nitida fere hispido-pubescens, thorace parvo, vix punctulato, elytris minus dense punctatis, obsolete sat distincte tricostatis, pedibus, antennisque flavis, his articulis 2 et 3 coniunctis 4to vix brevioribus. Long. ·11.

Common in the Southern States, and occasionally found at New York. This species is very distinct from those of the following division, which it resembles in form; I cannot, therefore, consider it as H. coarctata *Guérin*. The third joint of the antennæ is thinner, but not shorter than the second; the sides of the thorax are rounded and very finely margined.

c.

5. **H. fusciceps**, oblongo-ovalis, nigro-picea, dense hispide pubescens, antennarum basi, pedibus, thorace elytrisque pallidioribus, his dense punctatis, minime costatis, thorace subtiliter punctulato, lateribus subtiliter marginato, antennarum articulis 2 et 3 coniunctis 4to longioribus. Long. ·12.

Guerin, Spec. et Icon. An. Art. No. 9, p. 15.
Cyphon fusciceps Kirby, Fauna Bor. Am. 215.

One specimen from Lake Superior and another from New York. Body above luteo-testaceous, tolerably densely clothed with suberect grayish hair. Head nearly black, densely punctulate; antennæ black, four basal joints testaceous, 2d joint equal in length but thicker than the 3d; together they are a little longer than the 4th. Thorax short, very transverse, very finely punctulate, sides rounded very finely margined, not concave. Elytra densely, tolerably finely punctulate, without any trace of raised lines. Body beneath blackish, subsericeous with brown hair; feet testaceous.

On examining a series of specimens, which I considered as belonging to H. variabilis *Guér.*, I find differences which appear to have been heretofore overlooked, and which seem sufficient for the definition of several species. As these characters, which are derived from the thorax and from the nature of the pubescence, are not alluded to in previous descriptions, I cannot be certain of the identity of any of our native species with those of Europe.

6. **H. picea**, oblongo-ovalis picea, breviter griseo-pubescens, thorace punctulato, lateribus rotundato, subtiliter marginato, leviter concavo, elytris dense punctatis, minime costatis, antennis basi testaceis, articulis 2 et 3 coniunctis 4to longioribus, pedibus testaceis femoribus obscuris. Long. ·10.

One specimen, Lake Superior. This species is similar to the preceding, but the pubescence is shorter and scarcely erect. The thorax is more densely punctulate, and the sides are reflexed, so as to cause a slight concavity along the margin. The antennæ are as in the preceding, but the second joint appears somewhat thicker.

7. **H. punctata**, oblongo-ovalis, picea, dense subhispide griseo-pubescens, capite thoraceque valde punctulatis, hoc lateribus distincte punctulatis, elytris

dense punctatis, vix obsoletissime tricostatis, pedibus testaceis, femoribus infuscatis, antennis basi testaceis, articulis 2 et 3 coniunctis 4to longioribus. Long. ·11.

South Carolina and New York, Dr. Zimmerman. Piceous, densely covered with moderately long, slightly erect yellowish hair. Head densely punctulate; antennæ with the basal joints testaceous, the 2d and 3d nearly equal in length and thickness, together they are longer than the fourth. Thorax very short, densely punctulate, sides margined, scarcely rounded except at the angles. Elytra densely punctured, with very faint traces of three elevated lines. Beneath piceous, with the legs paler and femora somewhat obscure.

8. H. nebulosa, oblongo-ovalis, nigro-picea, parcius griseo-pubescens, capite punctulato, thorace obsolete punctulato, lateribus vix rotundatis, subconcavis, elytris dense punctatis, testaceis, macula scutellari, sutura postice, margineque late infuscatis, antennis fuscis basi pallidis, 2 et 3 æqualibus, coniunctis 4to longioribus, pedibus testaceis, femoribus infuscatis. Long. ·10—·11.

Abundant in the Northern and Middle States. This species is readily distinguished by the punctuation of the thorax being less obvious than that of the head, and by the peculiar marking of the elytra, which are punctured as in the three preceding species, and entirely destitute of raised lines. It cannot be H. padi of Europe, as the 3d joint of the antennæ is equal in size and thickness to the 2d. If Guérin did not describe the head of H. obscura as smooth, I should refer my specimens to that species.

9. H. modesta, oblongo-ovalis, rufo-testacea, dense pubescens, thorace capiteque subtilius punctulatis, illo lateribus distincte marginatis, elytris dense punctatis, antennarum articulis 2 et 3 æqualibus, 4to coniunctis longioribus. Long ·09.

South Carolina, Dr. Zimmerman. This species resembles the two preceding, but is smaller; the head and thorax are equally finely punctulate; the antennæ have the 3d joint as long and as thick as the 2d. The side margin of the thorax is distinct and slightly reflexed.

10. H. pusilla, ovalis, nigro-picea, griseo-pubescens, capite thoraceque punctulatis, hoc lateribus fere rectis, distincte marginatis, elytris sat dense punctatis, macula apicali læte flava, pedibus testaceis, femoribus infuscatis, antennarum basi flava, articulis 2 et 3 coniunctis 4to longioribus, illo crassiore. Long. ·08.

Two specimens, Indiana, near Evansville. This species is more regularly oval than any of those above described; the antennæ are as in H. fusciceps and picea—that is, the 2d joint is evidently thicker than the 3d.

11. H. collaris, elongato-oblonga, atra nitida, parce pubescens, thorace rufo, vix punctulato, lateribus subrotundatis, reflexis, elytris minus dense punctatis, minime costatis, antennarum articulis 2 et 3 testaceis, æqualibus, 4to coniunctis longioribus, tibiis tarsisque piceis. Long. ·16.

Guérin, Spec. et Icon. An. Art. No. 9, p. 4.

Georgia, three specimens. Very distinct from H. ruficollis, not only by the form of the antennæ and thorax, but by the coarser punctuation of the elytra. The thorax is entirely bright yellow, without any tendency to become dark in the middle. The third joint of the antennæ is not thinner than the second.

12. H. bicolor, elongato-oblonga, atra nitida, parce pubescens, thorace rufo, parce punctulato, lateribus subrotundatis, latius reflexis, elytris minus dense punctatis, minime costatis, antennis basi flavis, articulis 2 et 3 æqualibus, 4to coniunctis longioribus, pedibus flavis. Long. ·15.

Two specimens, from Georgia. Resembles the preceding, but at first sight distinguished by the yellow feet.

The two following I cannot identify:

H. obscura *Guérin*, Spec. et Icon. An. Art. No. 9, p. 4, and H. oblonga *Guér.* ib. 13. Fresh evidence is required before the European H. variabilis and scutellum black; elytra luteous, irregularly rugose, with scarcely any appearance of punctures; margin posteriorly and at the apex blackish. Spurs of the posterior tibiæ very slender and acute. Maxillæ about half the length of the body.

15. N. nemorensis, nigra, villosa, capite medio, mandibularumque basi testaceis, thorace transverso, postice subangustato, confertim punctato, flavo, fusco bi- vel tri-guttato; elytris subtiliter punctulatis. Long. ·25.

Hentz, Trans. Am. Phil. Soc. 3, 258.

N. bimaculata Mels. Pr. Ac. Nat. Sc. 3, 54.

Alabama and New York, rare. For a variety from the Hentz collection, without thoracic spots, I am indebted to S. S. Haldeman. This species establishes a passage to the next division of the genus. The maxillæ are only half as long as the body, as in the preceding species, and the head is shorter than usual, as in N. palliata; the 2d joint of the antennæ is half as long as the 3d.

B.—d.

16. N. cribraria, nigra nitida, parce nigro-villosa, capite parce punctato, gutta frontali testacea, thorace transverso, lateribus antice rotundatis, parce punctato, flavo, fusco binotato, elytris flavis, parce grosse punctatis, macula apicali scutelloque nigris, abdomine testaceo. Long. ·27.

One specimen, Sta. Fe, Mr. Fendler. Head elongated, with the mouth strongly produced; fuscous or blackish, strongly punctured, vertex testaceous; antennæ with the 2d joint very small; maxillæ about half the length of the body. Thorax yellow, one half wider than long, sides parallel, anteriorly rounded, disc sparsely punctured, with two fuscous spots towards the base. Scutellum black. Elytra shining yellow, sparsely and coarsely punctured, punctures becoming smaller towards the apex; bright yellow, with a large apical black spot; thinly clothed with short black hair. Beneath black, abdomen testaceous, with the base fuscous. Posterior tibiæ with both spurs very slender and acute.

17. N. immaculata, virescenti-flava, nitida, glabra, thorace quadrato, non transverso, angulis anticis rotundatis, vix punctato, elytris parce cribroso-punctatis, antennis genubus tarsisque nigris. Long. ·4.

Say, Journ. Ac. Nat. Sc. 2, 22. Am. Ent. pl. 3.

Two specimens, Sta. Fé. Mr. Fendler. The maxillæ in this species are only one fourth as long as the body; the second joint of the antennæ is more than half as long as the third; the first is indistinctly testaceous. The spurs of the posterior tibiæ are small and acute.

B.—e.

18. N. vittigera, testacea, parce flavo-pubescens, thorace vix transverso, confertim punctato, lateribus parallelis antice rotundatis, elytris confluenter punctatis, vitta utrinque dilatata infuscata, antennis, palpis, genubus, tibiis tarsisque nigris. Long. ·4.

One specimen, Georgia. Body testaceous, with a few yellow hairs. Head densely punctured, triangular, mouth elongated, palpi and maxillæ blackish, the latter about one fourth as long as the body; last joint of the palpi nearly twice as long as the penultimate. Antennæ black, second joint about half as long as the third. Thorax scarcely wider than long, sides almost straight, apex rounded, so as to include a small portion of the sides; disc densely punctured. Elytra scabrous with confluent punctures, each with a broad brownish vitta extending from near the base to the apex. Beneath testaceous, knees, tibiæ and tarsi black; spurs of the posterior tibiæ short, the outer one broad, obtuse and rounded, the inner one narrower, but also obtuse.

19. N. cribricollis, testacea, vix pubescens, thorace subtransverso, lateribus rotundatis, confertim cribroso, elytris confluenter punctatis, antennis tarsisque nigris, tibiis versus apicem infuscatis. Long. ·28.

One specimen, Texas, Lieut. Haldeman. Sufficiently distinct by the strongly and densely punctured thorax. The antennæ and tibial spurs as in the last spe-of the genus yet discovered. It is more regularly and obtusely rounded posteriorly than the other species. The head is more prolonged, and the third joint of the antennæ is only half as long as the fourth. The thorax is half as wide as the middle part of the elytra. In recently developed specimens, the sides of the thorax, and the under surface of the body are pale.

A number of pupæ found with the insects have the thorax, the dorsal abdominal line, and the margin fringed with long spines. The specimens have dried so much that no examination of the mouth can be made.

2. E. ———, niger ovatus, postice acutus, tenuiter pubescens, elytris obsoleto striatis, transversim dense strigosis, apice ferrugineis, antennis pedibusque piceo-rufis, illis articulo 3io sequente vix breviore. Long. ·11.

One specimen, Vermont; collected by the late Prof. C. B. Adams. I can find no character to separate this species from E. hæmorrhoidalis of Europe; with the figures and description given by various authors it accords perfectly, but I have not yet had an opportunity of comparing it with European specimens, and therefore do not propose a name.

3. E. morio, longiusculus, ovatus, niger, postice acutus, tenuiter dense pubescens, elytris obsoletissime striatis, transversim strigosis, tarsis anticis, antennarumque basi testaceo-rufis, his articulo 3io sequente vix breviore. Long. ·11.

Alabama, collected by Hentz, and given me by Prof. S. S. Haldeman. This species is narrower than the preceding, and more acutely attenuated posteriorly, otherwise the differences appear to be entirely in color.

Synopsis of the Endomychidæ of the United States.

By John L. Le Conte, M.D.

Although I have not been able to refer to the scheme of classification of this family, proposed by Germar in the Encyclopedia of Ersch. and Gruber, it has seemed to me that our native species present sufficient interest for a synopsis. The necessity of referring to a general treatise, is the less felt, as our species seem to enter a small number of genera, most of which are already fully described in local European Fauna, such as Mulsant's Coléoptères de France, and Redtenbacher's Käfer Oesterreichs.

The following arrangement of the genera differs, however, in many respects, from that given by Mulsant, as well as from the portion of Germar's table cited by him. By considering specific characters as of generic value, the genera in this group seem to have been unnaturally increased, and closely allied species widely separated. For our genera, the following seems to be more suitable:

A. Prosternum inter coxas distinctum.

Antennæ gradatim incrassatæ, articulo ultimo truncato	Epipocus *Germ.*
Antennæ articulis ultimus tribus obliquis, maioribus;	
palpi maxillares dilatati	Endomychus *Weber.*
palpi maxillares tenues	Mycetina *Muls.*
Antennæ articulis ultimis tribus perfoliatis . .	Phymaphora *Newman.*

B. Prosternum inter coxas non productum.

Femora clavata; antennæ art 10mo obliquo . .	Lycoperdina *Latr.*
Femora non clavata; antennæ art. ultimis perfoliatis	Rhanis.

Epipocus *Germ.*

Antennæ articulo 3io longiore, articulis tribus ultimis gradatim maioribus, ultimo subtruncato, et sæpe inferno acuminato; prosternum inter coxas anticas angustum, distinctum; mesosternum postice truncatum; palpi maxillares articulo ultimo cylindrico.

taceous; the pectus, the knees and the tips of the tibiæ are usually fuscous; the tarsi are always testaceous; the scutellum is occasionally nearly black. The tips of the mandibles and the antennæ are black; the second joint of the latter is half as long as the third.

Horia *Fabr.*

H. sanguinipennis, elongato-oblonga, aptera, atra, nigro-pubescens, scabro-punctata, antennis capite thoraceque plus sesqui longioribus, elytris pallide sanguineis, humeris obsoletis. Long. ·3—·35.

Say, Journ. Acad. Nat. Sc. 3, 279.

Massachusetts; Dr. Harris. Found in sandy places in early spring. The ventral segments of one sex (female ?) are furnished in the middle with a broad black velvety patch of hair; in the other sex this is wanting.

2. H. Stansburii, elongata, atra, alata, nigro-pubescens, scabro-punctata, antennis capite thoraceque vix longioribus, versus apicem attenuatis, elytris sanguineis, fortius punctatis, humeris distinctis. Long. ·39—·5

Haldeman, Stansbury's Expedition to Great Salt Lake, 377.

Two specimens brought from Utah by Capt. Stansbury. For an opportunity of examining them I am indebted to Prof. Haldeman.

Although so different in form from the preceding, this species exhibits a remarkable parallelism of structure. In the head and thorax there is absolutely no difference to be perceived. The antennæ are shorter and much more attenuated externally; the body being provided with wings, the humeri become prominent, while in the preceding apterous species they are obsolete, or very broadly rounded. The larger specimen has a round patch of black velvety hair on the middle of each ventral segment of the abdomen.

Cephaloon *Newman.*

1. C. lepturides, valde elongatum, utrinque attenuatum, subtiliter punctulatum et pubescens, testaceum vel fuscum, thorace plus minus fusco variegato, lateribus subsinuatim rotundatis, angulis posticis prominulis, antennis pedibusque testaceis, pedibus posticis plus minus infuscatis. Long. ·36—·4.

Newman, Ent. Mag. 5, 377; Hald. Journ. Acad. Nat. Sc. 2d ser., 1, 95.

Lake Superior, not rare. This species varies very much, some of the specimens being very dark fuscous; the head and thorax are, however, always varied with testaceous; the sides of the thorax are slightly sinuous from the prominence of the posterior angles.

Although considered by Newman as belonging to the Œdemeridæ, this singular genus seems to me better placed as an anomalous genus of the Cantharidæ. The appendages between the claws of the tarsi are not found in Œdemeridæ, while in this tribe they have their analogues in Zonitis, Horia and Nemognatha, though in the present genus they are much larger and obtuse; the mandibles are slender and acute at the apex, as in the genera just mentioned.

2. C. varians, valde elongatum, utrinque attenuatum, subtiliter punctulatum, et pubescens, fuscum, antennis pedibusque testaceis, thorace lateribus late rotundatis, angulis posticis non prominulis. Long. ·35.

Haldeman, Journ. Acad. Nat. Sc. 2d, 1, 95.

One specimen from Maine, Mr. Brevoort. This species only differs from the dark colored varieties of the preceding by having the posterior angles of the thorax less prominent, so that the sides are not sinuate; the head and thorax are entirely fuscous above, and testaceous beneath.

Synopsis of the Atopidæ, Rhipiceridæ and Cyphonidæ of the United States.

By John L. Le Conte, M. D.

A large mass of pentamerous serricorn Coleoptera may be distinguished by having the anterior coxæ inserted in deep acetabula between the pro- and mesosternum, and the prosternum although sometimes very narrow, entirely corneous. The abdomen has five visible ventral segments, except in Cebrionidæ,

where the 5th is truncate and the 6th exserted. This portion may be divided as follows:

A. Coxæ anticæ globosæ.

Abdomen articulis 2 primis connatis	Buprestidæ.
Abdomen articulis omnibus liberis, 5to rotundato . .	Elateridæ.
Abdomen articulis omnibus liberis, 5to truncato . . .	Cebrionidæ.

B. Coxæ anticæ magnæ transversæ.

Coxæ anticæ transversæ, trochantino magno . . .	Atopidæ.
Coxæ anticæ conicæ, prosterno brevi, mesosterno protenso .	Rhipiceridæ.
Coxæ anticæ conicæ, prosterno integro, mesosterno simplici .	Cyphonidæ.

The first two families under (A.) are very extensive, and must form the subject of special essays. In the Elateridæ I include both Eucnemides and Throscites, as those groups do not appear sufficiently distinct to rank as families. There are also strong reasons for considering the Cebrionidæ as a group of the same value. In them the anterior acetabula are more confined to the prothorax than in the remaining three families, which are small in extent, and will be now considered.

ATOPIDÆ.

Coleoptera pentamera, antennis serratis, 11-articulatis, articulo 2do brevi; ligula quadrifida; coxis anticis transversis non prominulis, trochantino magno, conspicuo, in acetabulis e prosterno et mesosterno compositis pro unde insertis; prosterno corneo, postice prolongato; mesosterno concavo; abdomine segmentis 5 ventralibus liberis; tarsis articulo 1mo 5toque elongatis, hoc paranychio parvo bisetoso.

1. Tarsi elongati simplices, ungues integri.

Antennæ approximatæ, fronte elongata angusta, clypeo nullo	Ectopria *Lec.*
Antennæ distantes; palpi maxillares cylindrici . .	Stenocolus *Lec.*
Antennæ distantes; palpi maxillares dilatati . .	Anchytarsus *Guér.*

2. Tarsi elongati, ungues serrati . Odontonyx *Guér.*

3. Tarsi articulis intermediis dilatatis, ungues integri.

Antennæ distantes, art. tarsorum 1—4 subtus lobatis .	Dascillus *Latr.*
Antennæ approximatæ, art. tarsorum 2—4 breviter lobatis	Eurea *Lec.*

Stenocolus, Anchytarsus, Dascillus and Odontonyx are sufficiently explained at p. 229 of the present volume. I must add, however.

1. To the synonyms of Anchytarsus bicolor, must be placed *Elodes debilis* Ziegler, Proc. Ac. Nat. Sc. 2, 269.

2. To Odontonyx ornata *Guer.*, Schaum refers *Dasytes trivittis* Germar, Ins. Nov. 76. The species must therefore be called Odontonyx trivittis *Schaum*, (Bericht. Entom. 1849.)

ECTOPRIA *Lec.*

Antennæ basi approximatæ, elongatæ, articulo 1mo crasso, 2 et 3 minutis, 4—10 triangularibus, gradatim subangustioribus, 11mo ovali. Frons angusta, elongata; labrum rotundatum, mandibulas obtegens; palpi filiformes, maxillares elongati, labiales breviusculi. Pedes tenues, tarsi filiformes, articulis 1mo et 5to elongatis, intermediis coniunctis æqualibus, his gradatim paulo brevioribus, ungues parvi simplices; tibiæ calcaribus apicalibus obsoletis.

The body is short, convex, narrowed in front: the thorax is transverse and trapezoidal, with all the angles acute; the prosternum is produced posteriorly, and the mesosternum is concave. The species live on bushes near water.

1. E. thoracica, atra, subtiliter pubescens, thoracis lateribus tarsisque flavis. Long. [illegible]

Eubria thoracica Ziegler, Proc. Acad. Nat. Sc. 2, 269.

Georgia and Pennsylvania, on plants near water. This very pretty little insect continues still farther the affinity between Atopidæ and Parnidæ, referred to under Stenocolus (p. 229.) To the genus Eurypalpus *Lec.* it shows strong

PHYMAPHORA *Newman.*

Antennæ articulo 3io non maiore, tribus ultimis abrupte maioribus (maris maximis) clavam perfoliatam formantibus; palpi maxillares articulo ultimo cylindrico; prosternum inter coxas anticas angustum, distinctum; mesosternum elongatum, bicarinatum.

1. P. pulchella, elongata convexa, nitida, ferruginea, fronte nigra, thorace quadrato, parce punctulato, medio nigro, impressionibus basalibus brevibus linea basali coniunctis, elytris parce punctatis, basi, fascia postica obliqua apiceque ferrugineis; stria suturali distincta. Long. ·15.
Newman, Ent. Mag. 5, 389.
Lycoperdina puncticollis Ziegler, Proc. Ac. Nat. Sc. 2, 271.
Lycoperdina crassicornis Mels. Proc. Ac. Nat. Sc. 3, 176.
Found in every part of the Atlantic States. In the male the club of the antennæ is larger than the head, and the middle tibiæ are slightly dilated internally near the tip. This species is *Rhanis pulchella* Dej. Cat.

LYCOPERDINA *Latr.*

Antennæ articulis 2 et 3 longioribus ultimis vix abrupte maioribus, 10mo obliquo ultimo truncato; palpi maxillares articulo ultimo cylindrico; prosternum inter coxas anticas obsoletum; mesosternum fere triangulare; femora clavata.

1. L. ferrruginea, picea, antennis pedibusque rufo-piceis, thorace quadrato, impressionibus basalibus longis, linea basali coniunctis, elytris convexis, thorace latioribus, subtiliter punctulatis. Long. ·19—·21.
Le Conte, Ann. Lyc. 1, 172, tab. 11, fig. 14, (1824.)
Eumorphus angulatus Say, Journ. Ac. Nat. Sc. 5, 304.
Middle and Southern States. The femora are tolerably strongly clavate; the anterior tibiæ of the male are strongly mucronate internally at the middle. This species is *S. glabrata* Dej. Cat.

RHANIS.

Antennæ articulis 2 et 3 paulo longioribus, tribus ultimis subabrupte maioribus, perfoliatis, ultimo ovali; palpi maxillares articulo ultimo cylindrico; prosternum inter coxas anticas obsoletum; femora non clavata.

1. R. unicolor, elongata, rufa nitida, thorace convexo quadrato, postice subangustato, basi marginato, versus angulos posticos profunde foveato, disco subtilius punctulato, striis 2 antice abbreviatis insculpto, elytris convexis, thorace non latioribus, punctulatis, nigris, apice late testaceis, vel totis testaceis. Long. ·14.
Lycoperdina unicolor Ziegler, Proc. Ac. Nat. Sc. 2, 272.
Lycoperdina apicalis Mels. ibid. 3, 177.
Middle and Southern States, not rare. The anterior tibiæ of the male are armed internally at the middle with a short sharp tooth.

It is unfortunate that this pretty little species should have been first described from an unusual variety, as the specific name proposed is not applicable to well colored specimens.

I cannot find the genus Rhanis described in any work, and therefore do not cite any authority for it. As here defined it is intermediate between Phymaphora and Lycoperdina. The name first appears in Dejean's Catalogue, for two species from the United States, one of which (R. hæmorrhoidalis) is the type here described, while the other is *Phymaphora pulchella* Newman.

The Committee on the following paper by Prof. Haldeman, reported in favor of publication in the Proceedings:

Descriptions of some new species of Insects, with observations on described species.

BY S. S. HALDEMAN.

CICINDELA LECONTEI *Hald*. Dull cupreous, beneath green, with cupreous reflexions; white pubescent; head rugulose longitudinally upon the front, and transversely behind; labrum white, anterior margin blackish, short, transverse, strongly tridentate in the middle; palpi blackish green. Prothorax minutely wrinkled, narrowed posteriorly, disc convex, transverse impressions and dorsal line profound. Elytra convex, nearly double the width of the base of the prothorax, finely and obsoletely punctured, with an irregular stria of large punctures, base greenish; lunules submarginal, distinct, and yellowish white, the humeral one rectilinear, and extending to one-fourth the length of the elytra, where it is incrassated on the inner side, touching the medial fascia, which is triangular, with the apex extending one third of the distance towards the suture; the apical lunule is bent at a right angle, and reaches the suture.

Allied to C. rugifrons and C. scutellaris, resembling the latter in the character of the prothorax, and differing from the former in having the humeral lunule entire.

Wisconsin, Guex. Cab. Le Conte.

C. ANCOCISCONENSIS *Harris*. "Upper lip 3-toothed, thorax narrowed behind. Bronzed blackish brown above, with white humeral and terminal lunule, and intermediate angular band enlarged on the margin; body beneath green, tail purple." *Harris*.

Form rather slender, head tinged with metallic green, longitudinally rugulose, especially upon the orbits; front with distant impressed shallow punctures; labrum white or discolored, the margin obscure, strongly 3-toothed, with an obsolete tooth on each side; mandibles black, with the base white; antennæ and palpi metallic green and blue, with white hairs. Prothorax as wide as the eyes, and with the scutel, minutely scabrous, anterior, posterior and dorsal lines well impressed with metallic green, lateral margins punctate. Elytra minutely punctate with blue or green impressed microscopic points, with an indistinct subsutural irregular line of larger distinct punctures, and one or two very short similar lines on the humerus. Humeral lunule curving slightly inwards posteriorly, terminal lunule abruptly enlarged anteriorly, sometimes continuous with the marginal portion of the middle fascia, which is behind the middle of the elytron, extending transversely less than half the distance towards the suture, and bent backward and inward, terminating in an enlargement near the suture. Beneath and feet green, with white hairs. In the male the base of the maxillary palpi is yellow.

New Hampshire, Dr. Harris; Philadelphia, Schafhirt; Cab. Le Conte.

EVARTHRUS GRAVIDUS. Black, somewhat shining, robust and depressed, prothorax transverse, lateral margins reflexed, broadly rounded, slightly sinuate posteriorly, dorsal and anterior line impressed, basal angles square, with two well impressed longitudinal striæ, the surface of this part and the posterior part of the dorsal line being marked with irregular waved transverse striæ. Elytral striæ well impressed, finely punctured toward the base, except the submarginal ocellate row, interstices slightly convex. Length 10½, breadth (elytra) 4 lines.

Var. α. Interstices of the elytra smooth, with the punctures more distinct.

Var. β. Elytra smooth, the striæ and punctures indistinct.

This species adds a group (2f,) to the five of Le Conte, given in the Journ. Acad. Nat. Sci. 2d ser. 2, 227, and establishes a complete parallelism between the two divisions of the genus Evarthrus formed by him, the relations between the sections 2e and 2f, being equivalent to those between 1a and 1b. The characters of group f. are: Elytrorum striis non approximatis, thorace qvadrato, postice utrinqve bi-impresso.

EVARTHRUS HEROS *Say*, (Feronia) Journ. Acad. Nat. Sc. 3, 145. Since Dr. Le Conte alluded to this species, Journ. Acad. 2d ser., 2, 223, specimens have been obtained which show that E. colossus *Lec.* is a distinct species, and that the former belongs to the section of the latter.

Bolbocerus fossatus, ♂ Bright pale ferruginous; clipeus prominent, confluently punctured, its disc concave at the end by the elevation of the margin, sides parallel, anterior margin with three teeth, one medial, bounded by an obtuse emargination which forms the lateral teeth at the anterior angles; anterior canthus of the eye prominent. Pronotum with two horns above directed laterally, and slightly forwards, their posterior margin curving in a sharply defined semicircle, and forming an additional obtuse tooth on each side, which bounds a deep fossa anterior to it. Surface confluently punctured, particularly in the depressed portions, the prominent part above and posteriorly being smooth and shining. Lateral margin finely crenulate, with a slight emargination over the anterior angles; dorsal line distinctly impressed. Scutel sparsely punctured. Elytra paler posteriorly, and finely striate, the striæ with fine punctures. Inferior parts of the body paler than above; clypeus, mandibles, maxillæ and serrations of the anterior feet margined with black. Length 8½ lines.
Texas, Lt. H. Haldeman.

B. laportii. I propose to give this name to *Bolbocerus ferrugineus* Laporte, An. Art. Col. 2, 104, Westwood, Lin. Trans. vol. 21, p. 21. It is an East Indian species, and not the true American *Scarab. ferrugineus* of Beauvois, 1805, Ins. 90, tab. 20, fig. 3. *Scarab. ferrugineus* Oliv. 1789, Ins. 1, 9, 3, p. 181, tab. 23, fig. 202, belongs to a different genus.

B. westwudii. This name is proposed for *Bolbocerus furcicollis* Westwood, an East Indian species, confounded with the North American *B. furcicollis* Lap., itself a synonym of *B. ferrugineus* Beauv., and *B. lecontei* Dej. Cat., as Dr. Le Conte has informed me.

Geotrupes opacus *Hald.* Purple black with scarcely any lustre. Head scabrous, except a small spot on the vertex, with scattered punctures; clypeus regularly rounded, front with three straight radiating lines starting from one impression, the posterior one short and medial, the anterior ones running to the margin, and enclosing a small central tubercle in the angle which they form; pronotum with irregularly scattered impressed punctures, less sparse in the dorsal line, which is slightly impressed posteriorly; punctures becoming less sparse toward the lateral margins, where they are subconfluent; lateral fovea present, scutel punctate. Elytra smooth, scarcely striate, but marked by 16 somewhat irregular rows of fine punctures. Pygidium scabrous, 8 lines long.
Western Texas. Distinguished from *G. blackburnii* Fabr. by the want of lustre, and the striæ which connect the elytral punctures being evanescent, and in some parts wanting.

Enoplium quadrinotatum *Hald.* Rufous, with four elytral spots arranged in a square; surface scabrous, hirsute with black hairs. Head and prothorax rufous above and below. Front with a transverse impression between the anterior angle of the eyes; palpi, antennæ, a spot on the vertex, feet, pectus and abdomen shining black. Prothorax longer than wide, the sides convex, projecting most behind the middle; an evanescent black spot in front of the scutel. Elytra each with two conspicuous round black spots, one a little anterior to the middle, the other more than midway between the former and the apex. The size of the spots exceeds one third the width of the elytron. 3 lines long.
Texas. Bears some resemblance to *E. 4-punctatum* Say; but that species has a black head and prothorax. As in that species the antennæ are 10-articulate.

Genus Sandalus *Knoch*, 1801.

S. niger *Knoch*, 1801. N. Beiträge, 140, ♀. *S. Knochii* Guérin, 1843, Species et Icon. des An. Art. No. 4, p. 4, fig. 1 ♂; fig. 2 ♀. *S. rubidus* Mels. 1845, Proc. Acad. 2, 220, ♂. *Rhipicera rufipennis* Dej. Cat. Guérin was the first to point out the male of this species in certain specimens with fusco-rufous elytra, described as *S. rubidus* by Dr. Melsheimer, who, however, suspected that they might be the male of *S. niger*. Both sexes vary in size, the dorsal line is sometimes impressed in both, and the distinctness of the raised lines of the elytra differs in each.

S. PETROPHYA *Knoch*, 1801. N. Beitr. 131. Guér. Sp. No. 4. *Rhipicera fulva* Lap. 1834, Ann. Ent. France, 3, 326. *Rh. proserpina* Newman, 1838, Ent. Mag. 5, 383. Male considerably smaller than the female, and with the elytra slightly narrowing posteriorly instead of being widest behind the middle, as in the female. Black, with an indistinct yellowish pubescence. Mandibles black, antennæ dark rufous, base black; head and pronotum finely scabrous, the width of the latter about double its length, sides convex, subangular behind the middle, dorsal line impressed or wanting. Scutel circular, minutely scabrous. Elytra but little wider than the prothorax, slightly tapering posteriorly, surface deeply and coarsely punctured in irregular longitudinal series, leaving interstitial raised lines, which are most regular between each pair of the punctured lines. Tarsi with fulvous hair beneath, ungues reddish. Length 5½ lines, elytra 4, pronotum 1 in length and 1½ in breadth. In case *S. brevicollis* Mels., 1845, Proc. Acad. Nat. Sc. 2, 220, is a distinct species, it will be difficult to determine whether the male here described appertains to it or to *S. petrophya*. I think, however, that *S. brevicollis* has no sufficient character to separate it from *S. petrophya*.

SANDALUS SCABRICOLLIS *Hald*. ♀ Black, sides of the prothorax punctate scabrous, convex before the middle and concave behind it, so as to be slightly sinuous. Length 4½ lines, elytra 3½. Cab. Le Conte.

The prothorax is more coarsely punctured than in *S. niger*, (which has it finely punctulate) and the single specimen observed, besides its small size, has the apex of the elytra slightly compressed externally in a sloping direction.

Genus CRYPTOPLEURA *Lec*. Journ. Acad. 2d ser. 2, 6.

Head small, mandibles acute, palpi with the last joint somewhat enlarging towards the end, eyes subreniform, antennæ short and slender, 1st and 5th articulations rather longer than any of the rest. Prothorax subglobular, mesosternum protuberant. Scutel rounded posteriorly. Elytra rather slender, wider than the prothorax, narrowing gradually towards the apex; humeri prominent, sides sinuate near the base. Feet weak, femora slightly incrassated towards the apex.

C. GRATA *Hald*. Shining black; head, mandibles, thorax and scutel slightly sericeous with yellowish hair; labrum and palpi rufous, front flat, medial line slightly raised. Thorax finely and sparsely punctured. Elytra with fine and sparse piliferous punctures, apex truncate, marked each with 4 orange spots; the 1st longitudinal, basal and medial; the 2d before the middle, and marginal; the 3d medial and subsutural; and the 4th immediately behind the 3d. The 3 latter are irregular and confluent. Tibiæ, tarsi and base of the femora rufous. 8 lines long, humeri 4 wide.

Tampico, Mexico, Lieut. H. Haldeman.

TIMARCHA INTRICATA. Oblong convex, black, shining, scabrous with confluent impressed punctures, which are coarsest upon the elytra. Head irregularly and densely punctate, front concave, with an indistinct fovea on each side; antennæ with the penult articulation extending to the base of the pronotum, exterior articulations clothed with short brown hairs. Pronotum transverse, apex broadly emarginate, medial portion rectilinear; base sub-sinuate; sides very convex, narrowed posteriorly, basal angles acute; surface varied with irregular shallow impressions, and densely and irregularly punctate. Scutel with a few punctures. Elytra scabrous with large confluent punctures, the interstices irregular and finely punctate, humeral angle rectilinear and obtuse. Inferior surface less densely punctate, punctures of the feet fine. Less than 5 lines long.

Oregon, J. K. Townsend.

I have adopted the name applied in Dr. Le Conte's Cabinet.

T. INTERTEXTA. General characters of *T. intricata*. Frontal base obtusely impressed, basal angles of the pronotum rectangular; humeral angles obtusely rounded; abdomen sub-opaque, punctures indistinct. 5 lines long.

California, Joshua Child.

Distinguished from *T. intricata* by being more slender, by having the prothorax more transverse, with the sides more sinuous, the antennæ a little longer, a deeper emargination at the base of the elytra and prothorax, the punctures of the elytra more rugose, and the opacity of the abdomen, and less distinctness of its punctures.

BELOSTOMA IMPRESSUM *Hald.* Variegated dark and pale brown, neurations of the elytra varied with black, with a black stigma at the medial point where they cross. Head short, pronotum sinuous at base, sides sub-sinuous, transverse line rectilinear and obtusely impressed, a fovea in front of it on each side. Two foveæ forming conjointly a V-shaped medial mark at the apex of the pronotum. Scutel with two quadrangles of raised lines, one on each side, the raised dorsal line being common to the two. Inferior surface flavous, mottled with pale brown. Medial and posterior femora and tibiæ with three dark bands; anterior femora robust, simple, the down confined to the anterior margin; caudal appendages not protruded. 23 lines long, 9 wide.

California, Joshua Child.

Allied to *B. haldemanum* Leidy, but distinguished by the dorsal impressions, the lighter color of the inferior surface, and the comparative narrowness of the posterior tibiæ and tarsi.

ZAITHA INDENTATA *Hald.* Broadly oval, depressed, dark brown, finely scabrous. Head, pronotum and scutel with indistinct patches of very short prostrate flavous hair. Pronotum pyramidal, lateral and anterior margin with an impressed line; apex sinuous, apical angle obtusely rounded, sides rectilinear, base sub-rectilinear, dorsal line raised posteriorly, and impressed anteriorly, transverse posterior line distinctly impressed, portion posterior to it, and anterior portion of the scutel, transversely rugulose; a well impressed fovea (having a raised margin) on each side equidistant between the dorsal line and exterior and anterior margins, a second shallow fovea on each side of the dorsal line anteriorly, conjointly forming a V-shaped figure. Disc of the scutel with irregular rugæ radiating backwards and outwards, medial line impressed. Elytra with distinct cupreous reflexions, neurations very distinct. Feet with lines of silky hair, their surface and the inferior parts of the body covered with short prostrate hair. Length 15, width 8 lines.

California, Dr. Le Conte.

A second specimen has two longitudinal flavous lines on each side of the base. The latter is a female, and the posterior part of the body above is covered with ova.

Distinguished from *Z. bifoveata* Hald. Stansbury's Expedition, 370, tab. 10, fig. 1, by its darker color, broader form, and the greater distinctness of the foveæ on the pronotum.

PHALANGOPSIS SCABRIPES *Hald.* Flavous mottled with black, especially upon the posterior margin of all the segments, knee joints of all the feet and base of the antennæ, brown. Upper extremity of the femora strongly curved inwards toward the base; externally and above regularly reticulate with blackish, and scabrous with raised points, which are mostly confined to the dark portions; under margin with a row of small spines enlarging posteriorly. Length ♂ 11 lines, antennæ 48, posterior femora 11, tibiæ 12½, tarsi 4½. One specimen taken at Selma, Alabama, by Dr. Hendree.

Resembles *Ph. lapidicola* Burmeister, and *gracilipes* Hald. (Am. Assoc. 1849, p. 336,) in size, but differs from the former by the smaller femoral spines, and from the latter by the scabrous femora.

XYA MIXTA *Hald.* Shining flavous variegated with brown. Antennæ brown, head flavous punctate, more sparsely above, labrum and a large frontal macula black. Prothorax small and transverse. Elytra flavous, base and apex brown, less than half the length of the wings, which are pale, with the apex slightly fuliginous, and extending 1 line beyond the abdomen. Anterior feet flavous, tibial palm hirsute, with three terminal spines, internal angle with a slender tarsus (apparently bi-articulate) armed with two slender curved ungues. Medial feet and posterior femora variegated; posterior tibiæ with lamellar appendages as in *X. apicalis*. Abdomen flavous beneath and at the lateral margin, sides and apex brown. 5 lines long to the end of the wings.

Fort Gates, Western Texas, Lt. H. Haldeman.

Resembles *X. apicalis* Say, (which occurs on the Susquehanna) in general appearance, but it is smaller, and the prothorax is much less inflated.

Termes nigriceps *Hald.* Body, feet, trophi and antennæ flavous. Head glossy black, sparsely hairy, globose pyriform, projecting anteriorly and ending in a long horn; antennæ 12-articulate; feet slender and hairy. Length 1¼ line.

Soldier? with the head larger, sub-globular, unarmed, pale polished brown, front and medial line impressed; antennæ 14-articulate. Length 1¼ line.

Western Mexico.

This small species constructs nests apparently of cow's dung, which are attached to the trunks of trees. Dr. Le Conte has seen this or an allied species in Central America. The specimens with the larger head are presumed to be the soldiers.

Eumenes pensilvanica *Hald.* Black, with dilated impressed punctures. Hypostoma transversely truncate, with a marginal band of white; a white point at the posterior base of the antennæ, basal articulation of the antennæ with a narrow line of white. Abdominal peduncle small, with a narrow white band near its apex. Segments of the abdomen with a very narrow margin of white. Wings pale fuliginous. Length 5½ lines.

Pennsylvania.

The smallest of our species known to me, and having the mesonotum more coarsely punctate, and the white of the face forming a transverse band anteriorly.

The Committee on Mr. Girard's descriptions of new Nemerteans and Planarians, reported in favor of publication.

Descriptions of new Nemerteans and Planarians from the coast of the Carolinas.

By Charles Girard.

The species here described are all marine, and were mostly collected by my friend Wm. Stimpson, on the coast of South Carolina. Aware that I was engaged in researches concerning the natural history of these animals, he very kindly placed them in my hands for description.

The number of species thus added to the American fauna amounts to nine, four of which are new to science and two new to America.

Many of the following descriptions were prepared with the assistance of notes made on the spot by Mr. Stimpson himself, and while the animals were still alive. The coloration and general form are thus more correctly given than if these characters had been derived from the specimens as preserved in alcohol.

There are two forms to which I would direct the attention of naturalists, as they must have an immediate bearing upon the question of the natural affinities of these families either with annelids or with molluscs. I allude to the genus *Imogine* amongst Planarians, and to the genus *Stimpsonia* amongst Nemerteans. The former represents those gastropods which are provided with eyes at the top of their cephalic tentacles, and the latter the nudibranchiated acteons, with an expanded back.

NEMERTIDÆ.

1. Borlasia Kurtzii, Girard. Body elongated, three or four inches long, subcylindrical, somewhat depressed, continuous from head to tail. Anterior region rounded, elliptical in a retracted state, conical when protruded. Color uniform brownish red, lighter beneath.

From Charleston Harbor, east of Fort Johnson; found on muddy sandy flats on the third littoral region.

Genus RENIERIA, Girard. Body elongated and subcylindrical. Head conical and continuous with the body without any contraction of the neck. A longitudinal and lateral fissure on each side, as in Meckelias. Mouth nearly terminal, on the upper surface, as in Valencinias. Eyes specks wanting.

2. Renieria rubra, Girard. Body subcylindrical, a little broader than deep, four or five inches long when in a live state. Head conical, subtriangular, tapering forwards, split or furrowed on the sides. Mouth narrow and elongated, approximating the tip of the snout. Color uniform brick red, paler beneath.

Dredged on muddy sandy flats east of Fort Johnson, Charleston Harbor.

Genus LEODES, Girard. Body elongated, depressed, posteriorly tapering. Head separated from the body by a contracted neck, which is provided with a longitudinal fissure on either side. Mouth terminal. Eyes wanting. Habits not fossorial.

This genus is closely allied to *Meckelia*, from which it however differs in the continuity of the head and body, and also in the shape of the mouth, to which may be added the mode of coloration as described below.

3. Leodes striolenta, Girard. Body when extended, six inches in length and two tenths of an inch in width; somewhat convex anteriorly, broader and flattened posteriorly. Head a little smaller than the body, somewhat elongated, bluntly pointed, tapering, and separated from the body by a broad or very shallow constriction. Mouth slit, conspicuously long. Clefts on the sides of the neck very deep. Posterior extremity sharp and pointed. Body thickest anteriorly, with a rounded margin, compressed posteriorly with a sharp margin. Color of the body above dark pink, with a narrow line of deeper pink near the margin on each side, and covered with crowded, narrow, dark grayish or black longitudinal lines, darkest anteriorly. Body margined for the posterior two thirds with light yellowish gray. Head light gray with longitudinal black blotches, fewest towards the margin. Beneath dark red, with anteriorly dark gray blotches, mostly towards the margin, and a white medial line; and posteriorly without dark spots and with a red medial line and yellowish margin. Tail pale, with very few small scattered spots. In the young the colors are all pale except at the head, so that the dark branching intestine, occupying the posterior three fifths of the animal, is easily seen.

Found at Fort Johnson, under stones on hard clay, at low water.

4. Amphiporus sanguineus, Girard. Body elongated, depressed, anteriorly broad, posteriorly tapering, sides parallel, undulating when the animal is in motion. Head continuous with the body, and pointed forwards. Mouth terminal, minute. Generative opening very much elongated, approximating the end of the snout. Anus not quite terminal. Color uniform blood red.

From the fourth littoral region, near Fort Johnston, S. C.

5. Meckelia Pocohontas, Girard. Body very much depressed, flattened with a sharp margin, attaining sometimes a length of three feet. When immersed in alcohol it contracts to nearly half of that length; the anterior third of the body then becomes subcircular, with blunt edges contrasting considerably with the remaining portion, which preserves its flattened shape and sharp edges. The head is conical, tapering forwards and continuous with the body. Snout split vertically, dividing the upper and lower lip. The vertical split, however, affecting only the tip of the snout, whilst the horizontal split extends to the whole length of the head. Generative aperture narrow and elongated, situated near

the anterior portion of the body. Color uniform yellowish white, reddish anteriorly.

Found on the third and fourth subregions of the littoral zone, along the coast of North and South Carolina.

6. Meckelia Lizziæ, Girard. Body six or eight inches long, flattened. Head rather short and rounded, without any vertical splitting of the snout. Generative aperture oval, pointed anteriorly. Color uniform dull yellowish white. When immersed in alcohol, the body assumes the same shape as in the preceding species.

Inhabits the sandy flats near Fort Johnston, Charleston Harbor.

Genus STIMPSONIA, Girard. Body elongated, subcylindrical or compressed, provided with an expanded back, on the surface of which blood-vessels are observed, as in Acteons. Cephalic region marked with an annular and smooth membrane, overlapping the anterior part of the body. A broad, terminal and subcircular opening communicating with the general cavity of the body, and through which the products of the general apparatus find their way outwards. At the upper margin of the cephalic ring there is a funnel-shaped or rather corolliform organ somewhat like the corolla of the dragon root (*Arum*) in the centre of which a cylindrical proboscis may be seen, at the inferior part of which the mouth opens. The animal sucks its food through this proboscis, and the surrounding disc assists in adhering to its prey. There are no eye specks.

7. Stimpsonia aurantiaca, Girard. Body compressed laterally; transverse diameter about a quarter of an inch; depth greater than the horizontal diameter. Periphery of the anterior opening undulating. Length of the body about six inches, and probably attaining a larger size. Ground color of a bright purplish or greenish hue with numerous irregular transverse bands of bright golden.

Found at low water mark in holes descending perpendicularly into the sand. Fort Johnston, S. C.

PLANARIDÆ.

8. Planocera nebulosa, Girard. Body about half an inch in length, and a quarter of an inch wide, elliptical, provided with two whitish, protractile and retractile tentacles, a tenth of an inch in height when protruded. Ground color dark hyaline, with dark crowded mottlings, giving to the whole a dark grayish appearance. From the tentacles a medial dark brownish red line extends to the posterior margin. Beneath gray, except two whitish convolutions, the genital apparatus seen by transparency, anteriorly tinged with pink. The periphery is whitish hyaline.

Dredged just below low water mark on a soft muddy sand, east of Fort Johnston, S. C., by Lieut. Kürtz and Wm. Stimpson.

Genus IMOGINE, Girard. General form elliptical, discoid, periphery continuous, provided all around with a crowded series of minute black specks. Two tentacles on the anterior third of the body, and terminated by an oculiform organ.

9. Imogine oculifera, Girard. About an inch and a half in length and an inch wide. Upper surface fuscous, clouded with dark red spots; unicolor beneath. Tentacles cylindrical, swelling towards the top, and terminated by a rounded black eye.

Found by myself at Sullivan's Island, S. C., in May, 1850, under stones at low water mark.

The Committee on a "Notice of the Mya Nodulosa Wood," by Mr. Lea, reported in favor of publication.

Notice of the Mya nodulosa, Wood.

By Isaac Lea.

In the examination of the Molluscs of the Imperial Cabinet of Vienna, I observed a specimen of the family *Naiades*, which I immediately recognized to be the *Mya nodulosa*, described and figured by Wood, (General Conchology and Index Testaceorum), and which was placed by me among the nodulous *Uniones* in my Synopsis.

The form, thickness and nodulous character of this shell, is so much like that of *Unio pustulosus*, nobis, that it has been thought to be the same. I gave it a distinct place in my Synopsis (Ed. 3d, p. 22) with a note doubting it to be an "American species," meaning North American. The locality was unknown to Mr. Wood; and Mr. Traünfeld, the able zoologist, under whose charge this department of the Museum is placed, is entirely ignorant from whence the specimen was received, it having been in the establishment during the period of the late Mr. Mühlfeld's administration and without locality. Unhappily, therefore, neither of the two known specimens can be traced to their habitat.[*] The inspection of the specimen, however, enabled me at once to place the species in its proper position in the system, the teeth, particularly the lateral ones, having equal and parallel striæ as in the genus *Prisodon*, Schum,=*Castalia*, Lam. The cardinal and lateral teeth are both robust, and of the form of the ponderous subrotund *Uniones*, but the deeply impressed striæ separate it from that genus and place it in *Prisodon*. When Schumaker proposed his genus *Prisodon*, and Lamarck that of *Castalia* for the same shell afterwards, there was but one species known. It is true that D'Orbigny proposed two others, *quadrilatera* and *inflata*, but I recognize these only as variations. The genus *Prisodon* will now, if I be correct in my inductions, consist of three distinct species, each one belonging to a well characterized group, viz.: the plicate, nodulous and smooth divisions, and they will stand in the following order.

(Plicate.) Prisodon truncates, Schum.=Castalia ambigua, Lam.
(Smooth.) Prisodon Duprei, Lea=Castalia Duprei, Recluz.
(Nodulous.) Prisodon nodulosus, Lea=Mya nodulosa, Wood.

The Committee on Prof. Baird and Mr. Girard's descriptions of new Fishes from the river Zuni, reported in favor of publication.

Descriptions of some new Fishes from the River Zuni.

By S. F. Baird and Charles Girard.

The species of fishes here described as new, were caught in the Zuni River, New Mexico, by Dr. S. W. Woodhouse, while attached as Surgeon and Naturalist to the expedition of Capt. Seetgreaves, for the exploration of Zuni and its tributaries. Full descriptions with figures will be shortly published in the official report of Capt. Sitgreaves.

They belong to the Cyprinoid family, and constitute a new genus which we propose to call

GILA.

Characterized by its subfusiform and compressed body, its more or less arched back, especially in large individuals, and by its extreme attenuation posteriorly. The peduncle of the tail is rather slender. The head is much depressed, proportionally small, its upper outline concave, and its snout elongated. Eyes circular or elliptical. The mouth is small or of medium size, the upper jaw generally overlapping the lower, so as to conceal its cleft from above. No barbels or rudiments of barbels at the angle of the mouth. Pharyngeal teeth oblique, compressed, disposed on two rows with their tip slightly hooked. Branchial rches four on each side. Branchiostegal rays six in number, three on either ide. Scales varying in size according to the regions; small and not imbricated n the back, large and imbricated on the flanks, and of medium size on the belly nd tail. Lateral line well marked, forming an open curve on the abdomen and traight on the tail. Caudal fin forked or crescentic, generally unicolor; the ints of the back, flanks and abdomen merely varying in intensity.

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[*] The specimen has the fine nacre of the South American *Naiades*, and I have little doubt but that it inhabits the same country with the other two species.

1. Gila robusta, B. and G.—Body very much swollen anteriorly, and tapering very suddenly from the dorsal fin to the insertion of the caudal. Head very much depressed above, sloping very rapidly from the nape to the snout, and forming one fourth of the entire length. Eyes proportionally small and subcircular. Mouth tolerably large; the posterior branch of the maxillary does not reach the vertical line of the pupil. Dorsal fin situated on the middle of the back, and a little higher than long. Caudal crescentic. Anal situated behind the dorsal. Insertion of ventrals in advance of the anterior margin of the dorsal. The posterior tip of the pectorals does not reach the insertion of the ventrals. All the soft rays are bifurcated. Lateral line composed of about ninety scales. Color greyish brown above. lighter beneath.

Formula of the fins: D I. 9. C 8. I. 8. 8. I. 7. A I. 9. V I. 9. P 15.

2. Gila elegans, B. and G.—Closely allied to the preceding species. Its body, however, is more slender, and its tail proportionally more elongatad. The caudal fin is more deeply emarginate and more developed, as indeed are all the fins. The head is very much depressed and flattened on the snout. Eyes elliptical. The scales are proportionally more elongated than in the preceding species and are broader anteriorly than posteriorly; the lateral line has about ninety of them. The number of rays in the fins affords also a distinctive mark between both species. The ventrals have no rudiment of spiny ray. Color light brown.

Fin rays: D III. 9. C 9. I. 9. 9. I. 10. A III. 10. V 9. P 16.

3. Gila gracilis, B. and G.—This species is proportionally shorter, deeper, and more compressed than its congeners. It reminds us, in shape and general appearance, of the "Shiner" (*Leuciscus americanus*). Both the dorsal and anal fins are provided anteriorly, as in *G. elegans*, with three rudimentary spiny rays. The scales are rather small, very thin: there are from 80 to 90 of them in the lateral line. The relative position of the fins is the same as in the other species of this genus. Color yellowish brown.

Fin rays: D III. 8. C 8. I. 11. I. 7. A III. 8. V I. 8. P 16.

The Committee on Mr. Cassin's "Catalogue of the Hirundinidæ in the Collection of the Academy," reported in favor of publication in the Proceedings. (☞ See end of this Number.)

The Committee on Mr. Cassin's descriptions of new Swallows and Parrots in the Collection of the Academy, reported in favor of publication.

Descriptions of new species of Hirundinidæ and Psittacidæ, specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia.

By John Cassin.

I. HIRUNDINIDÆ.

1. Cypselus squamatus, *nobis*.

Form. About the size and general form of *C. ambrosiacus* and *C. parvus*. Bill rather broad at base, curved, wings and tail long, the latter forked, toes and claws strong.

Dimensions. Total length (of skin) from tip of bill to end of tail about 5 inches, wing 4½, tail 3 inches.

Colors. Entire plumage of upper parts greenish black with a slight greenish lustre, every feather of the head above, back, rump, wing coverts and upper tail coverts narrowly edged and tipped with grayish white, nearly obsolete on the head in some specimens and on the back in others, but generally so distinct as to present a mottled and scaly character.

Under parts with the sides and flanks brownish black with a green lustre, feathers edged with gray as in the plumage of the upper parts. Wide medial portion of the entire under parts from the base of the lower mandible to the tail coverts white, in some specimens mixed with brown, especially on the breast. Under coverts same as the flanks, and largely marked with white, in some specimens with the latter color predominating. Plumage of the tibiæ and tarsi dark brown, claws pale horn color.

Hab. British Guiana.

Obs. Specimens of this little species have been presented to the collection of the Academy by Henry G. Dalton, M. D., an accomplished and eminent physician and naturalist, resident in Georgetown, British Guiana. He represented it as a common bird in that country, and known by the name of Sand Martin, on account of its living in holes in the ground in sandy situations.

We have been rather disappointed in not finding a description of this bird, but our impression is that it has been confounded with the *Hirundo nigra*, Gm., and it seems to be the third variety of that species as given in Syst. Nat. 1, p. 1025. The true *H. nigra*, which has been found in Jamaica by Mr. Gosse (B. of Jam. p. 63, pl. 10,) is much larger, and is so described by Gmelin. Though resembling in some measure the species mentioned above, it is easily recognized by the scaly character of its plumage, more or less apparent in all the specimens that we have seen, and is distinguished from any of its American relatives by its very long tail and wings, and small size.

2. PETROCHELIDON MURINA, *nobis.*

Form. Size of *P. leucorrhoa* (Vieill.) which is *H. frontalis*, Gould, and slightly larger than *Chelidon urbica*, (Linn.) Bill, tarsi, and feet small and weak, wings rather long, broad, with the second quill slightly longest, tertiaries emarginate, tail rather wide, forked.

Dimensions. Total length (of skin) from tip of bill to end of tail about 5½ inches, wing 4½, tail 2½ inches.

Colors. Entire under parts from the base of the lower mandible, (except the inferior tail coverts,) dark cinereous or mouse color with a silky lustre, uniform and unspotted. Under tail coverts brownish black with a green lustre.

Head above, back, rump, wing coverts and upper tail coverts black with a green lustre slightly tinged with violet. Wings and tail brownish black with a very slight green lustre.

Hab. Republic of Ecuador, South America.

Obs. This bird appears to be allied to *Hirundo patagonica* and *H. andecola*, D'Orbigny, Guérin's Magasin, 1837, p. 69, and is about the size of the latter. It has, however, no white on any part of the plumage, and the tail is strongly forked.

The only specimen in the museum of the Academy was received in one of the very interesting collections presented by its constant friend Edward Wilson, Esq., of Pembrokeshire, England, and was obtained by him in Paris.

3. PETROCHELIDON ? TIBIALIS, *nobis.*

Form. Small, size of *Cotyle riparia*, (Linn.)

Bill curved, rather strong, wing moderate with the first quill longest, tail rather short only slightly forked.

Dimensions. Total length (of skin) from tip of bill to end of tail about 4½ inches, wing 3 6-10ths, tail 2¼ inches.

Colors. Plumage of the tibiæ white, other inferior parts entirely smoky brown, darkest and nearly black at the ends of the inferior tail coverts. Entire upper parts brownish black with a greenish lustre on the head and back, and palest on the rump. Wings and tail brownish black.

Hab. Unknown.

Obs. This species, of which the specimen described is from the Rivoli collecion, does not appear to us to belong to either of the genera of swallows heretofore established. It has somewhat the bill of *Collocalia*, with the wings and ail of *Petrochelidon*, and very small and weak tarsi and feet. It may readily e distinguished by its pure white thighs, and is probably South American, hough we have no reliable indication of locality. An obscurely marked specimen in the collection, but which we regard as possibly the young of this species, s labelled as coming from Brazil.

1. Cecropis badius, *nobis*.

Form. About the size of *C. striolata* (Temm.) and rather larger than *Hirundo ufa* or *H. rustica*. Not so large as *C. senegalensis*, but strictly congeneric with it and other species of this group as given by Bonap. in Cons. Av. p. 339.

Bill rather strong, wings moderate with the first quill slightly longest, some of the secondaries irregularly indented at their tips, tertiaries emarginate. Tail deeply forked, two outer feathers narrow and acuminated to their tips, tarsi and feet strong.

Dimensions. Total length (of skin) from tip of bill to end of tail about 7 in., wing 5½, tail 4 inches.

Colors. Rump and entire under parts from the base of the lower mandible to the tail coverts, deep chesnut brown, on the under parts of the body, every feather having a minute central line of black, not observable on the rump. Under tail coverts widely tipped with black. No white spots in the tail nor on any other parts of the plumage.

Neck behind with a collar, not well defined, of same chesnut brown as the under parts of the body. Head above, back, wing coverts, upper tail coverts, wings and tail black, with a bluish violet lustre inclining to green on the wings. Inferior wing coverts chesnut.

Hab. Malacca ?

Obs. Two specimens of this fine swallow were selected by the writer from a large collection of Indian birds which had just been received by the eminent naturalist and taxidermist, Mr. John G. Bell, of New York. He was informed that the collection had been imported from Malacca.

This species agrees very nearly in size with the Javanese species of this difficult genus, *C. striolata* (Temm. and Schl.) but can readily be distinguished from that or from any other species by the deep chesnut color of the under parts of the body, which is almost immaculate, and much darker than in any other species known to me, or which I have found described.

II. PSITTACIDÆ.

1. Chrysotis viridigenalis, *nobis*.

Form. Large, about the size of *C. autumnalis* (Linn.) Bill strong, culmen curved from the base and slightly grooved. Wing with the second, third and fourth quills longest and nearly equal, quills broad, tail of twelve feathers, moderate, rather broad, tarsi short, robust. Small space around the eye, bare.

Dimensions. Total length (of skin) from tip of bill to end of tail about 12 inches, wing 8, tail 4½ inches.

Color. Top of the head from the base of the bill, fine crimson, varying in extent in different specimens, other plumage of the head above green at the base of the feathers, many of them having subterminal transverse bands of bluish cinereous, and all narrowly tipped with black. Cheeks fine pale green (with no yellow or red.)

Entire plumage above and below green, darker on the back and tinged with yellow on the under parts, every feather of the back, rump, neck, breast and abdomen narrowly tipped or edged with black. First primary black, others green for the greater part of their length, but bluish black at their tips. A large spot of fine crimson occupying about the middle third of the first five or six secondaries, which are tipped with fine blue. Tail above and below dark green at the base, terminal portion greenish yellow, central feathers darkest, some of the outer feathers edged with reddish chesnut at their bases. Under tail coverts yellowish green, shafts of the feathers black.

Bill (in skin) pale yellowish white.

Hab. South America. Brazil?

Obs. Several specimens of this bird are in the Collection of the Academy, variously labelled "*Psittacus vernans?*" and "*Amazona lilacina* Less." It is not the latter species, and I have found no such name as the former. The extent of the space on the head occupied by both the crimson and bluish ash, varies much in different specimens, and in one the latter is nearly obliterated.

This species appears to have generally been confounded with *C. autumnalis*, (Linn.) which it very considerably resembles. It is, however, invariably smaller, and has no yellow markings whatever on the face. The bill is clear yellowish white, with no tinge of brown or horn color, as in that species.

2. PSITTACULA LINEOLA, *nobis*.

Form. Small; size of *P. passerina* (Linn.) Wings with the first and second quills longest and nearly equal; tail feathers pointed, the two central feathers longest, acuminated; bill tumid; tarsi and feet strong.

Dimensions. Total length (of skin) from tip of bill to end of tail about 6 inches; wing 4; tail 2½ inches.

Colors. Shoulders black. Entire plumage above and below green, slightly tinged with brownish on the back, and with yellow on the under parts, rump, upper and under tail coverts, most obvious on the latter. Every feather of the entire plumage except the quills and tail narrowly tipped with black, nearly obsolete on the middle of the breast and abdomen, but very conspicuous on the head, neck, back, rump, coverts of the wing and tail, sides and flanks, and assuming the character of rounded terminal spots on the upper and under coverts of the tail.

Quills green on their outer webs, brownish black on their inner webs, tinged with green and paler on their inner margins; tail feathers green, the two central feathers with a line of brownish black along their shafts and tipped with the same color; other tail feathers also brownish black along their shafts and on their inner margins. Bill, tarsi and feet light colored.

Hab. Mexico, National bridge.

Obs. This little Parrot does not appear to be nearly related to any other species, and at first sight bears a greater resemblance to some of the small Australian species than to any which are American. Two specimens are in the collection, one brought by Mr. Pease from the vicinity of the National bridge, and the other collected by Mr. Bruzin, also in Mexico.

3. ARA AURICOLLIS, *nobis*.

Form. Rather smaller than *Ara severa* (Linn.) Bill abruptly curved; culmen flattened, bare space commencing at the nostril, including the eye and completely enclosing the under mandible. Wing rather long, second and third quills longest and nearly equal; tail graduated, containing twelve feathers.

Dimensions. Total length (of skin) from tip of bill to end of tail about 15 inches; wing 8½; tail 8½ inches.

Colors. A large spot of yellow on the back of the neck, somewhat rectangular in shape, and extending slightly on to the sides of the neck at its lower edge.

Head above, from the base of the bill to the crown, black, which is also the color of the cheeks immediately next to the bare space. Occiput, and all other parts of the plumage, except the wings and tail, green, tinged with yellowish on the back and wing coverts, and very slightly with bluish on the occiput. Primaries and secondaries light blue; tertiaries same yellowish green as other plumage.

Tail, with the two central feathers above, reddish chesnut or maroon for the greater part of their length, yellowish green at base, and towards the end subterminally light blue and narrowly tipped with yellow! other feathers of the tail much the same, but with the light blue predominating on their outer webs and yellowish green on the inner webs. Under surfaces of wings and tail pale silky yellow.

Hab. South America, Bolivia.

Obs. Peculiarly characterized by the large yellow space on the back of the neck. Three specimens, much alike in plumage, are in the collection; two of them have been labelled in Europe as natives of Bolivia, the other without label.

4. Palæornis viridicollis, *nobis*.

Form. Similar to and about the size of *P. columboides* (Vig.) Wing with the second primary longest, secondaries short; tail long, graduated, with the two central feathers longest; tarsi short and with the feet moderate. A bare space at the base of the under mandible.

Dimensions. Total length, (of skin) from tip of bill to end of tail, about 10½ to 11 inches; wing 5¾; tail 6 inches.

Colors. Entire under parts and collar around the neck fine glossy green. Front, cheeks, wings and wing coverts green, darkest on the quills; head above, sides of the neck, back and rump bluish cinereous, darkest and with the blue predominating on the rump and upper tail coverts. Tail above dark blue tipped with yellow, some of the outer feathers having their inner webs of the same color and greenish; tail beneath yellow, under tail coverts yellowish green. Collar on the neck in front black. Bill red, under mandible paler.

Hab. India, Himalaya mountains.

Obs. At first sight the present bird resembles *P. columboides*, but can at once be distinguished by the green color of the under parts, which in that species are light cinereous. It has no black collar around the back of the neck as in *P. columboides*, and the color of the tail above is entirely different.

Two specimens have been sent from Europe by Mr. Edward Wilson.

5. Prioniturus flavicans, *nobis*.

Form. Similar to that of *P. platurus* (Vieill.) and *P. discurus* (Vieill.) but larger than either. Bill strong, rather tumid; wings long, second and third quills longest and nearly equal; tail moderate, rather wide, the two central feathers with their shafts exserted and with spatula formed tips; tarsi and toes robust. A small bare space at the base of the under mandible.

Dimensions. Total length, (of skin) from tip of bill to end of tail, about 11 inches; wing 7½; tail 5 inches.

Colors. Entire under parts greenish yellow, extending upwards and forming a wide collar around the neck,—the yellow most clear and distinct on the breast and collar,—greener on the abdomen and inferior coverts of the tail.

Head fine green, tinged with light blue on the vertex. Upper parts of the body, wings and tail dark green, first primary light blue on its outer edge; all the quills margined with brownish black on their inner webs; tail tipped with black and with its inferior surface greenish blue. Bill (in dried specimen) nearly white, tinged with horn color at the base.

Hab. Celebes.

Obs. The only specimen of this species is another of the valuable contributions of Edward Wilson, Esq., to the collections of this Society. It is quite different from either *P. platurus* or *P. discurus*, both of which species are in the collection, and is peculiarly marked by its yellow breast and wide cervical collar of the same color. It is labelled as a native of the island of Celebes.

ELECTIONS.

Mr. Joshua B. Lippincott, Mr. Edward S. Whelan, and Mr. Peter Lesley, of Philadelphia, were elected *Members*; and Wm. D. Hartman, M. D., of West Chester, Penn., was elected a *Correspondent*.

July 5th, 1853.

Vice-President **Bridges** in the Chair.

The following communication from Prof. Agassiz was read:

"The specimen of Cambarus Gambelii liberally lent to me by the Academy or comparison, has afforded most unexpected information. Why that species hould have been referred to the genus Cambarus by Mr. Girard, who first decribed it, I am at a loss to ascertain, unless it be *because it inhabits the United States*, Erichson having ascertained that there are Crawfishes with six, and thers with five pairs of gills, and that the species with five pairs of gills, for which he proposes the name of Cambarus, live in the United States. As soon as learned that our zealous and lamented friend, Dr. Gambel, had left specimens f Crawfishes from the far West, my interest was aroused to the utmost, as I wanted to know whether the western range of this continent would present among hese animals the same difference from those of the eastern, and the same agreement with those of the western parts of the old world, as have already been oberved in their physical features, and in the geographical distribution of other eings. My anticipation was fully justified. Cambarus Gambelii *Gir.*, is no ambarus, though it lives in America. It has six pairs of gills, as the Crawshes of Europe, adding another instance of the remarkable correspondence of he eastern and western tracts of different countries, when compared with their omonyms, and of their striking difference when opposite shores are contrasted."

July 12th.

Vice-President **Bridges** in the Chair.

etters were read—

From the Linnean Society of Lyons, dated 22d April, 1853; from he Academy of Sciences, Belles Lettres, &c., of Lyons, of same date; nd from the Agricultural Society of Lyons, of same date; severally ansmitting the volumes of their publications announced this evening.

July 19th.

Vice-President **Bridges** in the Chair.

A letter was read from Henry A. Ford, M. D., dated Glasstown, aboon River, Africa, March 18, 1853, acknowledging the receipt of s notice of election as a Correspondent, and transmitting an additional llection of objects of Natural History for the Museum.

A letter was read from Mr. Richard D. Wood, of Philadelphia, dated uly 12, 1853, acknowledging the receipt of his notice of election as a ember.

July 26th.

Vice-President **Bridges** in the Chair.

An amendment to Chapter 3, Art. 3, of the By-Laws, was adopted, hanging the amount of a life membership from fifty dollars to one hundred dollars.

Also a resolution that the amendment should not take effect on the present members of the Institution until after January 1, 1854.

Dr. McEwen announced the decease of John Price Wetherill, late Vice-President of the Academy, and moved the appointment of a Committee to draft resolutions expressive of the sense of the Academy of the loss which it has sustained.

The Committee, consisting of Dr. McEwen, Dr. Hays and Mr. Vaux, after having retired for a short time, reported the following Resolutions, which were unanimously adopted:

Resolved, That the Academy profoundly regrets the loss which it has sustained by the death of its late Vice President, John Price Wetherill, who for thirty years has been an active and useful member, contributing liberally to its Library and Cabinet, and, where occasion required, to its funds; and who, by his zealous and untiring efforts for the promotion of the objects of the Academy, has largely contributed to its present prosperous condition.

Resolved, That the members of the Academy, individually, have lost a warm friend; one whose advice and sympathy were always ready in those peculiar circumstances requiring a sound, discriminating judgment.

Resolved, That in testimony of respect for his memory, the members of the Academy will attend his funeral in a body, and that the President's chair be dressed in mourning for three months.

ELECTION.

John C. Bullitt, Esq., of Philadelphia, was elected a *Member*.

August 2d.

Vice-President **Bridges** in the Chair.

The following letter from Mr. Isaac Lea, dated Langen Schwalback, Duchy of Nassau, June 21, 1853, addressed to Dr. Leidy, was read:

"My kind friend, Professor Dunker, of Cassel, most generously gave me his only specimen of a rare species of the family *Naiades* of Lamarck, under the name of *Castalia sulcata*, Krauss. On examining it, I found that while it had some of the general characters of this genus, (*Prisidon*, Schum.,=*Castalia*, Lam.,) it had not that of the striate teeth. It therefore properly belongs to the *Uniones*, and must be placed in the triangular group of that genus. In this translation it loses its specific name, as that has long since been applied by me to a species of *Unio* from the Ohio river. I therefore propose to name it after the able naturalist, Prof. Krauss, of Stuttgart, who has been the first to describe it, and it will follow in my systematic arrangement after *Unio triangularis*, Barnes, under the name of *Unio Kraussii* Lea, with the synonym of *Castalia sulcata*, Krauss.

In Prof. Dunker's interesting collection, I observed a nearly perfect valve of a *Naiad*, from Liberia, under the name of *Anodonta Herculea*, Middendorf. This, I have no doubt, is the *Dipsas plicatus*, Leach. The dimensions of this specimen are greater than any I have ever seen of the family of *Naiades*. Its breadth is 12½ inches, and its length 7¼ inches, which is greater than the specimen in the collection of our Academy.

I also observed in Prof. Dunker's collection his *Unio macropterus*,* which is the same as my *Unio superbus*, and therefore is a synonym to the latter. His

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* Its habitat is found to be Danu-Luar River, Island of Sumatra.

Unio Cumingii is the same with my *Unio cucumoides*—is therefore a synonym to the latter. Prof. Dunker had not had access to my descriptions of the above species when he described in the Zeitschrift für Malakozoolgie, 1846 and 1852."

Mr. Girard read two papers, entitled severally "Observations upon the American species of the genus Esox," and "Note upon a nest constructed by Catfishes;" both of which were referred to the following Committee: Major Le Conte, Dr. Zantzinger and Dr. Ruschenberger.

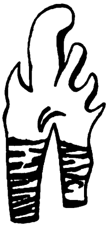
Dr. Leidy offered the following observations:

In the Proceedings of the Academy for 1851, page 326, some remains of extinct Cetacea are indicated as having been obtained from the green sand of New Jersey. At the request of Sir Charles Lyell, I have directed more particular attention to the specimens with a view to determining whether they are true cretaceous fossils.

The species named *Priscodelphinus Harlani* was proposed upon a single vertebra which had been previously described by Dr. Harlan, as having belonged to the saurian genus *Plesiosaurus*. In regard to the cetacean character of the bone there is no doubt. The specimen was obtained from the marl of Mullica Hill, which certainly belongs to the green sand formation of the cretaceous series. But as we know that remains of recent animals occasionally find their way into the marl,* the vertebra under consideration may also be accidental in its position. In texture the specimen has more the appearance of most of the Miocene Cetacean fossils, than it has the bones of the saurians belonging to the marl, although there is no miocene formation at Mullica Hill.

The species *Priscodelphinus grandævus* was proposed on two vertebræ, which were found by Dr. J. Thomas, in the Shiloh marl pits near Jericho, Cumberland Co., and this Mr. T. A. Conrad, who recently visited the locality, informs me is a miocene formation.

Mr. Conrad has presented me with an outline drawing (of which the accompanying wood engraving is a copy,) of a tooth, discovered by Mr. Samuel A. Wetherill in the green sand, of the cretaceous series, near Burlington, New Jersey. The specimen was given to Mr. Conrad, who made the drawing indicated, and afterwards loaned it to an acquaintance, from whom he has not been able to obtain it again. The figure represents a double-fanged tooth, with a crown divided into five prominent lobes. It is, without doubt, the tooth of a mammal, and resembles very much one of the posterior molars of *Stenorhynchus serridens*, Owen, an animal of the seal tribe. It may have belonged to a cetacean allied to *Basilosaurus*, but until further evidence is obtained, I propose to call the species indicated by the tooth *Stenorhynchus vetus*.



Prof. Francis S. Holmes, of Charleston, S. C., has sent for my inspection a collection of mammalian fossils, among which are the remains of several cetaceans as follows:

1. A nearly entire tooth, with fragments of five others, from the sands of Ashley River, S. C. These teeth may be saurian in character, but I suspect them to belong to a cetaceous genus of the family Delphinidæ. The nearly entire specimen resembles in general form the teeth of the dolphins. It is about three inches long, and is curved; and it has a conical crown capped with enamel, which forms a salient ridge on two sides. The fang is long and conoidal; and just beyond the crown is gibbous. On several of the specimens the enamel is smooth, but on the others is longitudinally corrugated. For the animal to which these teeth belonged the name of *Colophonodon Holmesii* is proposed.

2. Twelve imperfect teeth, averaging an inch in length, from the same locality as the former, belonging to the genus *Phocodon?* Agassiz.

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* See Proceedings, vol. v, 333.

3. Portions of three teeth, and fragments of two tympanic bones of a species of spermaceti whale, from the sands of Ashley River. The best preserved portion of a tooth in its perfect condition appears to have been about five inches in length, and at its middle it measures four and three-quarter inches in circumference. For the species the name *Physeter antiquus* is proposed.

4. Quite lately I received from Prof. Holmes fragments of both sides of a lower jaw, two teeth, and a portion of a rib of a cetacean, from the miocene formation of Virginia. The species belonged to the family Delphinidæ, and probably appertains to a new genus. The more perfect of the two teeth appears to have been about five inches in length, and it is curved conical. The fang is quadrate and hollowed, and the surface of the tooth, nearly to the end of the crown, which appears not to have been covered with enamel, is annularly and longitudinally corrugated. The greatest circumference of this tooth is three inches in length, and nearly straight. For the animal I propose the name of *Orycterocetus quadratidens*.

— [illegible] —

[illegible] 9th.

Vice-[illegible]es in the Chair.

A letter was read [illegible] Merrick, Esq., acknowledging the receipt of his notic[illegible]ember.

Also a letter fro[illegible]lton, Esq., dated New York, Aug. 6, 1853, addressed to [illegible]rson, in relation to the Hamilton Lands. Referred to the Co[illegible] the subject.

Mr. Charles Girard made a [illegible]cation, on behalf of Prof. Baird and himself, upon a species of frog, [illegible]r of toad, which they had recently described from specimens in the [illegible]gical Collections of the U. S. Exploring Expedition. Both of the sp[illegible]e obtained in Oregon, the frog on Puget Sound, and the toad on Columbi[illegible]. He characterised them as follows:

Rana pretiosa, B. and G.—Ground color above reddish-brown, blotched with black. A deep brown vitta extending from the eye to the shoulder in passing over the tympanum, and below which is a yellowish one passing over the angle of the mouth. Beneath dull greenish-yellow. Vomerine teeth disposed in two roundish groups, between the inner nostrils. Tympanum very distinct, rather small. Feet underneath granulated. Fingers slender and tapering. Toes webbed to their tip. A small and flattened horny processus at the base of the inner toe, and a minute conical metatarsal tubercle situated between the fourth and fifth toes. Skin finely granular on the anterior portion of the back, more coarsely posteriorly, and also on the sides of the abdomen. Two dorsal series of pores, one on each side of the back, but not very conspicuous.

Obs.—Is distinguished from *R. aurora* in having proportionally much shorter legs, especially the hind ones; also by the palmation of the toes, the membrane of which extends to their very tip, whilst in *R. aurora* the tip of the toes extends beyond their membrane. The granulation of the body and inferior surface of the feet is another feature by which both species differ.

Bufo columbiensis, B. and G.—Ground color light greenish, with large and irregular black blotches and reddish dots: a dorsal white vitta; an oblique black patch under the eye. Beneath of a soiled yellow, maculated. First finger equal to the second in length. Upper surface of head without elevated ridges and grooves; skin in this region rather thin, and firmly adhering to the skull. Parotids oblong, quite small. Tympanum small, very distinct. Toes webbed to nearly their tip. Two large metatarsal tubercles. A membranous ridge along the inner edge of the tarsus. Skin glandulous.

Obs.—May be distinguished from *B. boreas* by the relative size of the first and second fingers, which, in the present species are equal in length, whilst in *B. boreas* the first is longer than the second. The membranes uniting the toes are more deeply emarginate in *B. columbiensis*, and in which also the sole of the foot is granular instead of being smooth.

August 16th.

Vice-President Bridges in the Chair.

A communication was read from the Royal Bavarian Academy, dated Munich, 6th Nov., 1853, acknowledging the receipt of the Proceedings, vol. 5, Nos. 9—12; vol. 6, Nos. 1 and 2; and Journal, new series, part 2 of vol. 2; and requesting certain Nos. of the Proceedings deficient in their series; also transmitting their publications announced this evening.

Mr. Girard presented two communications by Prof. Baird and himself, intended for publication in the Proceedings, entitled "Descriptions of Fishes collected by Captains R. B. Marcy and George Mc'Clellan, in Arkansas," and "Descriptions of new species of Fishes, collected by Mr. John H. Clarke, on the United States and Mexican Boundary Survey, under Lieut.-Col. James D. Graham;" both of which were referred to Mr. Cassin, Dr. Ruschenberger and Dr. Hallowell.

The following communication was read from Dr. D. D. Owen, dated New Harmony, Ind., August 1, 1852:

"After submitting my paper read before the Academy of Natural Sciences, and printed in the Journal, 2d series, vol. 2, pl. 2, Jan. 1853, on a supposed new earth, or a modification of a new one, I supplied Dr. Genth with a portion of the mineral, with a request that he would examine it, and let me know the result.

Dr. Genth had no time during my stay in Philadelphia to enter fully into the investigation, but since my return to the west he addressed a letter to me on the subject, which reached this place during my absence from home, which I left on the 15th of June last, and did not return until lately, when the letter was received.

I beg leave now to submit the result of his conclusions in regard to it, which are very likely correct, though some of the reactions which I obtained require further investigation, which I propose to undertake when the work I am now engaged on shall have been completed.

Extract of a letter from Dr. Genth to Dr. D. D. Owen:

"I have just completed the experiments with your thalia, and have come to the conclusion that it is nothing but magnesia. Magnesia shows sometimes such a strange behaviour with reagents, that one is inclined to think it a new earth. I had the same case with my analysis of Kāmmerite (Rhodophyllite.) It is possible that the relations which exist in the mineral had not been destroyed, and that you have a solution of the mineral, for instance, a solution of aluminate of magnesia. I separated both with acet. of potash, and free acet. acid and carb. of baryta. The only strange reaction was, that it fell down with $NH_4O,\bar{O}$ in presence of NH_4Cl, but I find it now in all the magnesian minerals which I examine in a similar manner.

From the oxalate of your thalia I prepared the pure earth. With cobalt solution before the blowpipe gave it a flesh-colored mass. Dissolved readily in very dilute acid, and gave no precipitate with ammonia, in presence of chloride of ammonium, and all the reactions of magnesia. The sulphate gave with sulphate of ammonia the well known double salt in oblique rhombic prisms. The pure sulphate with seven equivalents of water crystallized right rhombic, and had the form, appearance, taste, and gave all the reactions of epsom salt. It gave me 50.8 per cent. of water, and 35.5 per cent. of sulphuric acid, which also prove that I had sulphate of magnesia. The analysis of the mineral is, according to J. L. Smith:

	$\dot{\mathrm{H}}$	$\dddot{\mathrm{Si}}$	$\overline{\dddot{\mathrm{Al}}}$	$\dddot{\mathrm{Fe}}$	$\dot{\mathrm{Ca}}$	$\dot{\mathrm{Mg}}$	$\dot{\mathrm{K}}$.	
J. L. Smith, . .	20.66	45.66	4.87	2 09	3.07	22.10	0.15	—98.45
E. Reakirt, . .	19.96	44.07	4.72	1.70*	3.75	21.49	not	det.
							K	Na
P. Keyser,		44.66	7.79		26.60		0.12	0.16

According to these analyses the mineral is Saponite.

As the original communication appeared in your Journal, I think it proper to forward the above."

Mr. Girard exhibited colored drawings of two species of the genus Salmo, referring one to *S. erythrogaster*, De Kay, and the other he considers as undescribed.

"Its large scales and fusiform body would undoubtedly recall to mind the salmon, but on a more close examination the general shape and outline are far more elegant than in the salmon, preserving altogether better proportions between the different regions of the body. The head forms about a fourth of the entire length, whilst in the salmon it is about the sixth only. The eyes are of medium size, and subcircular in shape, their diameter being contained about seven times in the length of the head. The posterior half of the maxillary which is regularly and most decidedly curved downwards, gives to the shape of the mouth quite a peculiar aspect. The anterior margin of the dorsal fin is equidistant between the tip of the snout and the base of the caudal. The posterior margin of the latter is regularly crescent-shaped. The adipose is elongated, club-shaped, and situated opposite the posterior half of the anal. The ventrals are inserted under the middle of the dorsal, somewhat nearer the anal than the pectorals. The scales are remarkably large, contrasting greatly when compared to those of *S. erythrogaster*, *S. fontinalis*, and *S. namaycush*, or *amethystus*. There are about a hundred and fifteen of them in the lateral line.

The color in the female is uniform silvery grey, darker on the back and head. Subquadrangular or subcircular black spots are observed upon the sides of the head, behind the eyes, along the back, and the half of the flanks, also on the dorsal and caudal fins, to nearly their edge. In the male these same colors exist, but spread all over with a reddish tint, more intense on the flanks and beneath than upon the head, back, and dorsal and caudal fins, where the red is sometimes but faintly indicated. The name of *Salmo sebago* is proposed for this species, which inhabits the southern part of the State ot Maine.

Mr. Girard, referring to a communication made to the Academy some weeks since by Prof. Agassiz, on the subject of Crawfishes, remarked:

Previous to the publication of his "Revision of the North American Astaci," &c., he was well acquainted with the fact that the genus *Astacus proper*, as now understood by Prof. A., was represented in North America. He further knew that this fact was demonstrated by Prof. J. D. Dana, in a paper published pp. 10—28, of vol. vi. (Jan. 1852), of the Proceedings of the Academy, and that consequently Prof. Agassiz had no claim upon that discovery.

As to the circumstance that *Cambarus Gambelii* may be referred to *Astacus* on the ground of having eighteen branchiæ instead of seventeen, Mr. G. said he was not satisfied that this fact was of a generic value, and consequently described the species as a *Cambarus* with the same propriety as he might have placed it in the genus *Astacus*.

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* The sesquioxide of iron and alumina contain a trace of Silica, which was not separated.

August 23d.

Vice-President Bridges in the Chair.

A letter was read from the Librarian of the Royal Academy of Sciences of Amsterdam, dated 27th July, 1853, asking for certain volumes and numbers of the Proceedings, to complete their series.

August 30th.

Vice-President Bridges in the Chair.

The Committee on Dr. Hoy's continuation of his paper on the Ornithology of Wisconsin, reported in favor of publication in the Proceedings.

Notes on the Ornithology of Wisconsin.

By P. R. Hoy, M. D., of Racine, Wisconsin.

[Continued from page 313.]

CERTHIADÆ, (5 species.)

• **Certhia Americana**, *Bonap.*
Common throughout the year.

• **Sitta Carolinensis**, *Linn.*
Common, remains during the winter.

• **Sitta Canadensis**, *Linn.*
This species does not remain with us during winter. A few nest near Racine, a greater number in the pine regions in the northern part of the State.

• **Parus atricapillus**, *Linn.*
Abundant, remain during winter.

Parus Hudsonicus, *Lath.*
A small party of this northern species visited Racine during the unusually cold January of 1852.

AMPELIDÆ, (2 species.)

Bombycilla garrula, *Vieill.*
Arrives in large parties from the first to the last of November, and leaves by the 15th April. The first arrivals are all young birds, destitute of the yellow markings on the wing, and with less of the wax-like appendages. These young birds generally proceed further south to winter, while the old birds, in perfect plumage, arrive later, and seldom, if ever, go further. I never have seen an individual entirely destitute of the *wax* ornaments. The only perceptible difference between the sexes is in size, the females being slightly the larger. In fifty specimens accurately measured, the average was :

Females, ... 8 5-12—14½.
Males, ... 8 2-12—13¾.

They are unsuspicious, permitting a near approach. Their fare consists of a variety of berries, but those of the mountain ash, (*Pyrus Americana*,) appear to be preferred to all others. They are frequently seen to eat snow as a substitute for drink.

*Bombycilla Americana, *Swain.*
Common, does not remain during winter.

ALAUDINÆ, (2 species.)

*Otocoris alpestris, *Linn.*
Abundant on the prairies. A few remain during the entire winter.

*Otocoris rufa, *Aud.*
Not an abundant species with us; becomes more numerous as you go west.

FRINGILLIDÆ, (33 species.)

Plectrophanes nivalis, *Linn.*
Abundant from November to April.

Plectrophanes Lapponica, *Linn.*
Met with in great abundance on the prairies, from the middle of October to the middle of May. Before they leave us in the spring they are in full song and perfect plumage. They sing in concert like blackbirds, either while on the wing or settled on fences.

Plectrophanes Smithii, *Aud.*
Occasionally met with in considerable numbers on the prairies.

*Zonotrichia iliaca, *Bonap.*
Common during October and April.

*Zonotrichia melodia, *Wilson.*
Common.

Zonotrichia Pennsylvanica, *Lath.*
Abundant during spring and fall.

*Zonotrichia leucophrys, *Gmel.*
Met with in great abundance in company with the preceding. A few nest in the vicinity.

Zonotrichia graminea, *Gmel.*
Occasionally seen, but is rare.

*Zonotrichia passerina, *Wilson.*
Not uncommon in the reedy *slews* on the *prairies.*

*Zonotrichia pusilla, *Wilson.*
Not an abundant species with us.

*Zonotrichia socialis, *Wilson.*
Common, arrive 1st of May.

Zonotrichia pallida, *Swains.*
Not unfrequently met with about the middle of May.

Zonotrichia Canadensis, *Lath.*
Very numerous autumn and spring, but few remain through the winter.

*Zonotrichia savana, *Bonap.*
Common on the high prairies.

*Zonotrichia Lincolnii, *Aud.*
Not uncommon spring and fall. A few remain during summer, and undoubtedly nest with us.

*Niphea hyemalis, *Linn.*
Common spring and autumn. Do not remain through the winter. Nest on Lake Superior.

*Ammodromus palustris, *Wilson.*
Common.

• **Melanerpes erythrocephalus**, *Linn.*
Common, migratory.

Apternus Arcticus, *Swains.*
I have specimens of this Woodpecker shot near Racine in the month of November.

• **Colaptes auratus**, *Linn.*
Common.

• **Centurus Carolinus**, *Linn.*
Not an abundant species with us. They remain during winter.

CUCULIDÆ, (2 species.)

• **Coccyzus Americanus**, *Linn.*
Not so numerous as the following.

• **Coccyzus erythrophthalmus**, *Wilson.*
Abundant.

PSITTACIDÆ, (1 species.)

Conurus Carolinensis, *Linn.*
Formerly Paroquets were common on the Mississippi, within this State—latterly they are seldom met with.

COLUMBIDÆ, (2 species.)

• **Ectopistes migratoria**, *Linn.*
Abundant.

• **Ectopistes Carolinensis**, *Linn.*
Common. Remain during winter.

PAVONIDÆ, (1 species.)

• **Meleagris gallopavo**, *Linn.*
Formerly Turkeys were common in this section, but now none are to be found. The last noticed near Racine was in November, 1846. Abundant in the southwestern counties.

TETRAONIDÆ, (6 species.)

• **Ortyx Virginiana**, *Linn.*
Within a few years this Partridge has become remarkably numerous.

• **Bonasa umbellus**, *Linn.*
Common in all the timber districts.

• **Tetrao Canadensis**, *Linn.*
Common on the head waters of Wolf River and vicinity of Lake Superior.

• **Tetrao Cupido**, *Linn.*
Greatly abundant. Two sportsmen, with one dog, generally bag from fifty to eighty in a day. We challenge the world for finer sporting grounds than the prairies of Wisconsin furnish during August, September, and October.

• **Tetrao phasianellus**, *Linn.*
Formerly quite common near Racine—now seldom met with. Abundant in all the northwestern counties.

• **Lagopus Saliceti**, *Swains.*
In December, 1846, two specimens were caught in a trap ten miles from Racine. West, in the tangle or evergreen swamps of the northwestern parts of the State. Not numerous.

[To be continued.]

The Committee on the following papers by Mr. Girard, reported in favor of publication in the Proceedings.

Observations upon the American species of the genus Esox.

BY CHARLES GIRARD.

The genus Esox is represented in North America by quite a large number of species, commonly called "pikes" or "pickerels," without any discrimination. The same species of Esox may be called here "pike," and elsewhere "pickerel."

When we first undertook the study of these fish, we were at a loss to know to which species might be strictly applied either of these vernacular names. We asked fishermen, some of them very intelligent, what the difference in their mind was, when calling a certain Esox a pike, and another a pickerel? They knew of no difference, but that when a pike was spoken of they understood the very large individuals, whilst the small ones were the pickerels, the young of the preceding.

In examining comparatively *Esox estor* and *Esox reticulatus*, of Lesueur, amongst other differences, it will be perceived that in one (*E. estor*,) the cheeks and opercular apparatus exhibit a perfectly smooth and naked skin, whilst in the other (*E. reticulatus*) these same parts are scaly all over.

In tracing the character throughout the range of the species we find naked cheeks and opercular apparatus in the maskallonge (*E. nobilior*, Thomps.) in the pike of Lake Superior, (*E. boreus*, Ag.) and in several others still confounded with *Esox estor* of Lesueur. On the other hand, *Esox americanus*, Lacep. (*E. niger* Lesu.) *E. fasciatus*, Dekay. *E. clathratus*, Bd., MS., resemble *Esox reticulatus* in having the cheeks and opercular apparatus covered with scales.

Consequently there are two groups of species in the genus Esox, based upon an organic difference, and for which we have two distinct names. The maskallonge and allied species we ought henceforth to call *Pikes*, retaining the name of *Pickerels* for *Esox reticulatus* and allied species.

The pikes, when full grown, are the largest of the genus; amongst pickerels, we find the smallest species. *Esox reticulatus* is the largest pickerel known, and it is as large as any of the specimens of *Esox boreus* which we have seen. We would nevertheless be inclined to think that the latter reaches a much larger size.

The organic difference which we have pointed out between the pikes and pickerels, corresponds to a curious fact in their geographical distribution in North America; the Pikes being confined to the great lakes and western waters generally, whilst the Pickerels occur in such ponds and rivers whose waters empty into the Atlantic.

A pike has been introduced into the Connecticut river, and the fact that it has multiplied there, is no objection to this general law of their distribution.

A *Pickerel* is said to occur in the Ohio river. We have not seen any specimen of this fish, the history of which ought to be carefully investigated. If a pickerel was originally an inhabitant of that body of water, then we shall have one exception to the general rule.

Lesueur has indicated under the names of *Esox vermiculatus*, *E. lineatus* and *E. depraudus*, three species of the genus Esox from the Wabash river. As no specimens are preserved any where, it will be difficult to identify them, even upon visiting the place where they occur. But one feature can be easily determined, that is whether their cheeks and opercular apparatus are or are not covered with scales. Any traveller will be prepared to make this observation.

Lesueur's *Esox lugubrosus*, from the eastern states, and *Esox phaleratus*, of Say, from Eastern Florida, are likewise undetermined in this respect.

Note upon a nest constructed by Catfish.

BY CHARLES GIRARD.

A few days since, in visiting a small pond, situated above Schuylkill Falls village, an innumerable quantity of small fish were seen along shore, near the surface of the water. On approaching them they all suddenly disappeared, and the water being muddy, we could not tell where they went. A scoop net brought to light a subspherical mass, composed exclusively of green confervæ, and which after examination proved to be a regular nest, constructed, as we suppose, by the parent fish, whose progeny it contained; for in it, the small fishes seen a moment before near the surface had gone to seek shelter. In all probability, the eggs were deposited in it, and when hatched, the young, instead of dispersing themselves, remain for some time congregated, under the care of the parent who provides food for them.

The number of young fish gathered around the nest, was at least from three to four hundred, and of different sizes. The largest were about 1½ inch long, and the smallest about ¾ of an inch. This difference in size seems to us, as indicating that eggs had been deposited and fecundated at different periods in the nest.

They all had the abdomen distended like full grown individuals before spawning. But this was owing to the stomach gorged with food. The skin of the belly was so tender that soon after death it was entirely decomposed, the intestine and stomach then appearing outside of the abdominal cavity.

The structure of the nest was very simple, confervæ in strings were disposed circularly all around. The size of the entire structure was about eight inches in its longest, and six inches in its shortest diameter. There was at least one opening to get in and out, but this portion of the nest we could not examine thoroughly from the want of clear water; and after having been kept for some time out of the water, it was entirely deformed.

The nest laid at the bottom of the pond, one foot and a half deep in that place, and protected by aquatic plants growing along shore. The water here is never subjected to any violent motion, and thus the soft materials of which it was constructed, were resistant enough for that particular locality.

We should think that under other circumstances, as, for instance, a current of water, catfish would construct their nests of a substance more capable of resisting a chance of destruction.

Further observations will tell us more about this interesting subject, and it is with the hope that some one, more favorably situated than we are, will devote some attention to it, that we have brought before the Academy the very little it was our good fortune to observe on this occasion.

The Committee on the following papers by Prof. Baird and Mr. Girard, reported in favor of publication in the Proceedings.

Descriptions of New Species of Fishes collected by Mr. John H. Clark, on the U. S. and Mexican Boundary Survey, under Lt. Col. Jas. D. Graham.

BY SPENCER F. BAIRD and CHARLES GIRARD.

PILEOMA CARBONARIA, B. and G.—Body elongated, subfusiform, compressed; peduncles of the tail slightly detached from the outline of the body. Head forming about the fifth of the entire length. First dorsal lower than the second, composed of fifteen rays; second dorsal containing thirteen rays, the extremity of the posterior ones extending farther back than those of the anal. The latter have eleven rays, the two anterior of which are short spines. The posterior margin of the caudal is very slightly emarginate and composed of seventeen well developed rays and several rudimentary ones above and below. The ventrals are lanceolated and composed of one spiny ray and five soft ones; their tip extends beyond that of the ventrals, and their insertion is a little in advance of the anterior margin of the first dorsal. Their pectorals are broad and composed of thirteen rays.

D XV. 13. A II. 9. C 3. I. 8. 7. I. 2. V I. 5. P 13.

Ground color reddish yellow with transverse bars of black. A black spot at the base of the caudal; latter barred. Base of dorsals, anal and ventrals black. Pectorals unicolor.

Rio Salado, Texas.

2. Boleosoma lepida, B. and G.—Body compressed, rather thick in the middle and attenuated towards the extremities. The head is continuous with the body, and forms one-fourth of the entire length. The first dorsal, the ventrals and the anal are quite small compared with the pectorals and second dorsal.

D IX. 11. A II. 6. C 3. I. 6. 5. I. 2. V I. 5. P 14.

Ground color reddish, with indistinct transverse blackish bars; base of the scales black; belly and fins unicolor. A vertical black spot beneath the eye.

Upper tributaries of the Rio Nueces, Texas.

3. Pomotis aquilensis, B. and G.—Resembles *P. longulns* in the shape of its body which, however, is proportionally less elongated. The flap of its operculum is much more developed, and directed obliquely downwards. The mouth is smaller; the posterior extremity of the maxillary not extending beyond the vertical line of the anterior rim of the eye. The first dorsal is higher than the second, just the reverse being observable in *P. longulus*. The tips of the ventrals reach the anterior margin of the anal fin. The caudal is slightly emarginate.

D X. 11. A III. 10. C 3. I. 8. 7. I. 2. V I. 6. P 12.

There are twenty-four rows of scales on the deepest portion of the body.

The ground color as preserved in alcohol, is uniform reddish brown. The bases of ventrals, anal and dorsal exhibit a large black patch.

Eagle Pass, Texas.

4. Catostomus latipinnis, B. and G.—General shape subfusiform; head proportionally small, contained five times and a half in the total length. Eyes small, situated near the upper surface of the head; the mouth is small, the lips large and fleshy. All the fins are very much developed and constitute a very prominent feature. The upper margin of the dorsal is slightly concave; the posterior margin of the caudal, crescent shaped; the anal, ventrals and pectorals are posteriorly rounded or subconical.

D I. 14. A II. 8. C 5. I. 8. 8. I. 6. V 10. P 18.

The scales are of medium size, considerably smaller on the back than on the sides and belly. The lateral line runs through the middle of the sides from head to tail.

The upper part of the body is reddish brown; the upper part of tail and sides, greenish brown: the belly, yellowish orange; the caudal is olive; the anal, ventrals, and pectorals, show traces of deep orange, especially on their outer margin.

Rio San Pedro, of the Rio Gila.

5. Gila Emoryi, B. and G.—Body elongated, compressed. Head continuous with the body, gradually tapering from the nape to the snout. Head forming the fifth of the entire length. Mouth almost terminal, though inferior; the upper jaw overlappping the lower one of the thickness of the lip. Eyes circular, of medium size. Anterior margin of the dorsal a little nearer to the snout than to the base of the caudal; anterior margin of the anal nearly opposite to the posterior margin of the dorsal. The caudal fin is deeply forked and slender. The insertion of the ventrals is in advance of the dorsal, but does not extend to the anterior margin of the anal. The pectorals are lanceolated, and do not reach with their extremity to the insertion of ventrals.

D III. 9. A II. 10. C 8. I. 9. 9. I. 7. V 9. P 14.

The lateral line makes a slight curve on the sides, being a little nearer to the belly than to the back.

Collected by Dr. John L. Leconte, near the mouth of the Gila.

6. Gila Grahamii, B. and G.—Body subfusiform, compressed. Head forming a little less than the fourth of the entire length. General disposition of the fins as in the preceding species, they differ in their structure as follow.

D II. 10. A II. 10. C 10. I. 9. 8. I. 10. VI. 10. P 17.

The disposition of the scales presents likewise differences which will be better understood by figures.

Head above and back, reddish brown; upper half of sides greyish brown; inferior half of sides, greyish yellow. Abdomen, dull yellow, the whole with a metallic reflection. Fins unicolor, of the hue of the region to which they belong.

Rio San Pedro, of the Gila.

7. Fundulus grandis, B. and G.—Body stout and very much compressed, five inches long; the head forming the fourth of that length. Back bluish black, sides greyish, with yellow spots. Beneath dull yellow. Dorsal and caudal deep bluish black, margined with yellow; other fins yellow; the base of anal spotted. Body and fins of the female unicolor.

Formula of fins: D 11. A 12. C 2. I. 9. 9. I. 2. V 7. P 18.

Brackish waters in the vicinity of Indianola, Texas.

8. Fundulus tenellus, B. and G.—Body regularly fusiform, compressed, the head forming two-ninths of the entire length. Eyes large. The back greyish yellow, with small black dots irregularly dispersed. A black vitta extends from the snout, across the eye, down through the sides, to the base of the caudal fin. Beneath light yellow. Dorsal, anal and caudal greyish with minute black dots; ventrals and pectorals yellow, without dots. Anterior margin of anal in advance of the dorsal. Tip of ventrals almost reaching the anal.

D 8. A 10. C 2. I. 8. 7. I. 1. V 6. P 12.

Prairie Mer Rouge, La. (James Fairie, Esq.,) and Russellville, Ky.

9. Hydrargyra similis, B. and G.—Back, bluish grey; sides and abdomen, yellowish. Transverse narrow black bands in both sexes. Fins yellow, unicolor in the female, dorsal, caudal and anal bluish grey. In the male the posterior margin of the dorsal being provided with one black spot and two yellow ones, one above, the other below the black. The caudal fin is posteriorly truncated.

D II. A 9. C 3. I. 8. 7. I. 2. V 5. P 18.

Brackish waters in the vicinity of Indianola.

10. Cyprinodon elegans, B. and G.—The general form varies according to the sexes; the back in the male is very much arched, the body consequently is deeper than in the female. The largest individuals are two inches and three-eighths in total length. The head forms two-sevenths of the length. Back deep bluish black; sides variegated with bluish black and greenish yellow. The posterior edge of the caudal is margined with black in the male. A black spot, more conspicuous in the female, is observed on the posterior margin of the dorsal.

D 11. A 10. C 3. I. 8. 8. I. 2. V 6. P 14.

Rio Grande del Norte.

11. Cyprinodon macularius, B. and G.—Body elliptically elongated, an inch and six-eighths long; head short and rounded forming one fourth of the entire length. Above reddish brown, yellowish beneath, maculated with black; spots on the sides with an irregular tendency to arrange in vertical bands. Dorsal blackish; other fins dull yellow, with a greyish base.

D 5. A 10. C 3. I. 7. 6. I. 2. V 7. P 12.

From the Rio Gila.

12. Cyprinodon bovinus, B. and G.—Has a general resemblance in shape to *C. elegans;* the head, however, is more truncated. The color in the male is uniform blackish brown above; yellowish green beneath. The fins are unicolor except the caudal which has a blackish margin. The coloration of the female differs from that of the male in having the lower portion of the flanks irregularly

maculated; the fins are unicolor except the dorsal which has a black spot at its posterior margin.

D 9. A 8. C 6. I. 7. 6. I. 5. V 6. P 14.

Leon's Springs, Rio Grande del Norte.

13. Cyprinodon gibbosus, B. and G.—The back forms a very prominent arch in the individuals of both sexes. The nape is often depressed and subconcave. The head is proportionally small, and the eyes large. The back, upper part of sides, head, and dorsal fins, are uniformly bluish black in the male; beneath golden yellow, and the caudal margined with black; the anal, ventrals and pectorals, yellow. The female exhibits vertical bars of black on the sides from the head to the caudal fin which is unicolor like the anal, ventrals and pectorals. The dorsal is provided posteriorly with a black spot.

D 10. A 11. C 4. I. 8. 7. I. 3. V 6. P 15.

Brackish waters of Indianola.

14. Heterandria affinis, B. and G.—Body elongated, subfusiform and compressed. Head forming about one-fifth of the entire length. Body yellowish brown above, orange beneath. Fins unicolor, except the caudal which has two narrow bands of black.

D 6. A 8. C 3. I. 7. 6. I. 2. V 5. P 12.

Rio Medina and Rio Salado.

15. Heterandria nobilis, B. and G.—General form much stouter than in the preceding species; back arched. Head forming the fourth of the entire length. Ground color reddish; margin of scales black.

D 8. A 7. C 4. I. 7. 7. I. 3. V 6. P 10.

From Leona and Camanche springs, valley of the Rio Grande del Norte.

16. Heterandria patruelis, B. and G.—Body rather elongated, compressed. Head stouter than in *H. affinis*, though forming the fifth of the entire length. Reddish brown above, yellowish beneath.

D 5. A 8. C 3. I. 7. 6. I. 2. V 6. P 11.

Inhabits the Hydrographic basin of the Rio Nueces; specimens were collected in the Rio Sabinal, Rio Leona and Rio Nueces, and Elm creek.

17. Heterandria occidentalis, B. and G.—Body slender; back slightly arched; head small and conical, forming the fifth of the entire length. Reddish brown above; reddish yellow beneath. Fins unicolor, of a light yellowish white. The ventral line is marked by a black stripe. A black and heavier line may be observed under the tail, between the posterior margin of the anal fin and the base of the caudal.

D 6. A 7. C 4. I. 7. 6. I. 3. V 6. P 10.

Collected in the Rio Santa Crux of the Rio Gila.

Description of New Species of Fishes, collected by Captains R. B. Marcy, and Geo. B. M'Clellan, in Arkansas.

By Spencer F. Baird, and Charles Girard.

1. Pomotis breviceps, B. and G.—Body subelliptical, rather short; head very short, fore part convex and elevated; peduncle of tail of medium size. The greatest depth is more than half of the length, the caudal fin excluded. The origin of the dorsal fin is in advance of the opercular flap, and is composed of eleven spiny rays and ten soft ones. The origin of the anal is under the first soft ray of the dorsal, and contains nine soft and three spiny rays. The posterior extremities of these two fins extend a little beyond the middle of the peduncle of the tail. The caudal is slightly emarginated posteriorly, and its angles rounded; it is composed of seventeen fully developed rays and a few rudimentary ones. The ventrals inserted behind the base of pectorals, extend by their tips to the anus. The pectorals, composed of thirteen rays, do not reach quite so far.

D XI. 10. A III. 9. C 2. I. 8. 7. I. 2. V I 5. P 13.

The scales are large, higher than long, and disposed in twenty rows on the line of the greatest depth, and about eight rows on the peduncle of the tail. The lateral line is very conspicuous, from head to tail, and very much arched on the body.

The opercular flap is very large, broad and posteriorly rounded, and margined with whitish. Irregular light lines are observed on the cheeks and opercular apparatus. The color of the body appears to have been uniform reddish brown.

Otter Creek, Arkansas.

2. **Pomotis longulus**, B. and G.—Body rather elongated, subfusiform; the head conical and continuous with the body, save a little depression on the snout. The elongated appearance of this species is owing to the head and peduncle of the tail being longer than usual in this genus. The posterior tip of both dorsal and anal fins do not reach the base of the caudal. The origin of the dorsal is immediately above the membranous flap of the operculum; it is composed of ten spiny, or nine or ten soft rays. The anal is situated very far back, its anterior margin begins opposite to the fourth soft rays of the dorsal; it has eight soft rays and three spiny ones. The caudal is slightly emarginate posteriorly, and its angles rounded. It is composed of seventeen fully developed rays and a few rudimentary ones. The ventrals are placed under the pectorals; their tips when bent backwards do not reach the anus. The pectorals are subelliptical, and extend as far back posteriorly as the ventrals.

D X. 9 or 10. A III. 8. C 2. I. 8. 7 I. 1. V I 5. P 13.

The scales are of medium size, longer than high. Twenty seven rows may be counted across the line of greatest depth of the body, and about thirteen rows on the tail. The lateral line is regularly arched on the body, and almost straight on the tail.

Color uniformly dark brown, probably considerably altered by the alcohol. The membranous opercular flap is comparatively small and entirely black. Irregular lighter lines are observed on the cheeks and opercular apparatus.

Otter Creek, Arkansas.

3 **Leuciscus lutrensis**, B. and G.—Body elongated, fusiform, compressed, largest specimen examined, two inches and three-eights; head forming a little less than the fourth of the entire length. Eyes proportionally large. Anterior margin of the dorsal fin at an equal distance from the snout and base of caudal. Caudal forked. Anal fin entirely behind the dorsal. Insertion of ventrals in advance of the dorsal; their tip not reaching the anterior margin of the anal. Tip of pectorals almost contiguous to the base of the ventrals. Scales large. Lateral line forming a very open curve convex towards the abdomen, and nearer to it than to the back.

D I 8. A I 9. C 2. I. 9. 8. I 1. V 8. P 11.

Ground color bluish brown; back blue; dorsal fin yellowish brown; caudal, pectorals and ventrals, reddish.

Specimens of this species were caught in the Otter Creek, Arkansas.

4. **Leuciscus bubalinus**, B. and G.—Body very much compressed, back considerably arched, and peduncle of tail quite narrow. Head two-ninths of the total length, which is two inches and one-eighth. The dorsal and anal fins are very much developed, while the pectorals and ventrals are comparatively small. The caudal is forked. The base of ventrals is under or a little behind the anterior margin of the dorsal, and their tips reach the anterior margin of the anal. The tips of pectorals are contiguous to the base of ventrals.

D 8. A I 9. C 4. I. 9. 9. I. 3. V 8. P 11.

The scales are large and the lateral line forms a very open curve convex towards the abdomen and nearer to it than to the back. Differ from the preceding by the structure and position of the fins and scales.

Caught with the preceding in Otter Creek, Arkansas.

5. **Ceratichthys vigilax**, B. and G.—Body fusiform, compressed; specimens before us two inches long, probably immature. The head forms the fifth of the

length. The eyes are rather small. The dorsal fin is longer than high; its anterior margin situated almost at the same distance from the snout and the base of the caudal fin. Caudal fin forked. Anal back of the dorsal. Base of ventrals behind the anterior margin of the dorsal; tip not reaching the anal fin. Pectorals not reaching the base of ventrals. The pectorals, ventrals and anal are proportionally small compared to the dorsal.

D 9. A 8. C 3. I 8. 8. I 3. V 8. P 14.

Scales large; lateral line running through the middle of the sides, slightly bent downwards on the abdomen.

Back brownish yellow; a greenish grey stripe down each side covering the lateral line.

Caught in Otter creek, Arkansas.

On leave granted, Dr. Leidy made the following communication:

Dr. John Evans, who is now engaged under the United States government to survey part of Oregon, recently sent to the Academy for examination, ten boxes, containing a large quantity of mammalian and chelonian fossils, from the Mauvaises Terres of Nebraska. In this large collection, it is worthy of remark, there is not to be found a single fragment of a bird or a fish bone. Most of the animals indicated by the remains, have already been described in Dr. D. D. Owen's Geological Report, and in the "Ancient Fauna of Nebraska" of the author. The collection contains several new genera and species of mammalia, besides fragments of important parts not before obtained of those species described.

A very large proportion of the collection consists of remains of *Oreodon*, of which there are fragments of about two hundred individuals. The species *O. Culbertsonii* predominates, and then follows *O. gracilis*; while of *O. major* there are very few fragments. This enormous quantity of remains of *Oreodon*, would indicate that the animal was gregarious, and existed in immense herds like the recent Peccary or Bison.

Only a few small fragments of *Poebrotherium Wilsonii* and *Agriochoerus antiquus* are contained in the collection.

Of the two species of *Rhinoceros*, *R. occidentalis* and *R. Nebrascensis*, there are remains of numerous individuals.

Of *Entelodon Mortoni* the collection contains portions of several crania.

Of *Anchitherium Bairdii* there are four crania and numerous small fragments of others.

Of the huge *Titanotherium Proutii* there are numerous small fragments of bones and teeth; and also several entire superior molars, which have served to remove some of the obscurity in regard to the characters of the animal. From the last mentioned specimens it appears that those, which have been described as probably indicating a new species of *Palæotherium*, under the name *P. giganteum*, (Ancient Fauna of Nebraska, pl. XVII, figs. 11–13,) belong to *Titanotherium Proutii*, while several superior molars (Ib. figs. 1–7), attributed to the latter, belong to a new genus associating characters of *Rhinoceros* and *Palæotherium*. For this genus and species, represented by figures 1–7, plate XVII, in the Ancient Fauna of Nebraska, I propose the name of EOTHERIUM AMERICANUM.

Of *Machairodus primaevus* there are preserved several crania and some other bones.

Of the new mammalia above referred to, there are four carnivora and one ruminant. The carnivora consist of three species of *Hyænodon* and a new genus. The ruminant is a new genus closely allied to the recent Moschus. These interesting animals I propose to name as follows:

1. HYÆNODON HORRIDUS, *Leidy*.—This is the largest of the three species above referred to. It is founded upon a much fractured skull and lower jaw; but on both sides of the specimen the teeth are preserved nearly perfect. The formula of the dentition is as follows:

$$\text{in. } \frac{3}{3} \text{ c. } \frac{1}{1} \text{ mol. } \frac{7}{7}$$

This is the largest species of *Hyænodon* which has yet been discovered, the skull measuring one foot in length, whilst the length of the anterior cusp of the last upper molar or carnassial tooth is one inch in length: and the inferior carnassial tooth measures fifteen lines antero-posteriorly. The series of lower molars closely resemble those represented in the upper left figure of plate XVII of Blainville's "Subursi antiqui" (*Ost. Gen.*) and the superior carnassial tooth is like that represented in figures 3—3b. pl. XI. of Gervais' Zoologie Française.

Measurements.

Length from occipital condyle to incisive teeth	12 in.	
Breadth of face at superior carnassial teeth	4 "	
" " " canines	2 "	3 lines.
" forehead at supra orbital processes	4 "	3 "
Depth of lower jaw at inferior carnassial tooth	1 "	8 "
Length of crown of upper canine anteriorly	2 "	1 "
" " lower " "	2 "	3 "
" series of upper molars	5 "	2 "
" " lower "	5 "	9 "

2. Hyænodon cruentus, *Leidy*.—The second species is about the size of the *Hyænodon leptorhynchus*, Laizer and Parieu.* It is founded upon a portion of the left side of a lower jaw, containing the root of the canine, and the third and fourth molars and the carnassial tooth.

Measurements.

Length of the lower molar series	4 in.	6 l.
Antero-posterior diameter of inferior carnassial tooth		10½ l.

3. Hyænodon crucians, *Leidy*.—The head of this species was almost the size of that of the Prairie Wolf. The specimen upon which the species is founded consists of the greater portion of a scull, containing on one side the posterior five molars, and on the other the anterior three molars, and of a lower jaw containing all the molars on both sides except one.

Measurements.

Length of head from post glenoid tubercle to anterior part of the upper canine	5 in.	
Length of series of upper molars	3 "	2 lines.
Length of anterior cusp of superior carnassial tooth		5½ "
Antero-posterior diameter of inferior carnassial teeth		6½ "
Depth of lower jaw below the " " "	1 "	
Length of crown of an upper canine anteriorly		11 "

1. Daphœnus vetus, *Leidy*.—This new genus and species is proposed upon a specimen of a cranium without the face, a fragment of a left upper maxilla containing the posterior three molars, the posterior portion of the left side of the lower jaw containing the last two molars, and a lower ante-penultimate molar of the right side.

The cranium is elongated and narrow and possesses very much the form of that of the recent *Paradoxurus*. The glenoid articulation is transversely concave as in the weasels, etc. The auditory bullæ are comparatively small. Of the superior posterior three molars, the last is the smallest, and has a simple oval crown; the penultimate is second in size and resembles that of the wolf, but is broader in relation to its antero-posterior diameter; and the ante-penultimate is the largest, and also resembles that of the wolf, but is more trilateral, relatively broader compared with its antero-posterior diameter, and has less elevated tubercles.

Of the inferior posterior three molars, the last is smallest and very like that of the wolf; the penultimate is next in size, and has an oval crown as in the wolf, but has much less elevated tubercles; and the ante-penultimate, which is the largest, in relation to the size of the animal, is much smaller than in the wolf, but it has the same general form; presenting a broad heel behind, worn off flat in the specimen, and three lobes anteriorly, having the same relation to one another, as in the wolf, but more nearly equal in size and forming together more of a triangle.

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* An. des Sc. Nat., 2 ser. xi, 1839.

Measurements.

Length of cranium from occipital condyle to the narrowest portion of the former, which is just in advance of the bifurcation of the sagittal crest	3 in.	5 lines.
Breadth of cranium at most prominent part	1 "	11 "
" " where narrowest		10 "
Depth of lower jaw below last molar	1 "	
Antero-posterior diameter of last lower molar		2¼ "
" " penultimate lower molar		4 "
" " ante-penultimate "		7 "
Transverse diameter of last upper molar		2¾ "
" " penultimate "		5½ "
" " ante-penultimate molar		7¼ "

1. LEPTOMERYX EVANSI, *Leidy*.—This is established upon a cranium which has lost the nose, and is broken at the parietal region. The specimen contains upon one side all the molars, six in number, and upon the other side the posterior four molars; and it is accompanied by a portion of the lower jaw containing the true molars and the last premolar.

The genus is closely allied to the existing *Moschus*, and the species was about the size of the *M. Javanicus*. The six superior molars form a closed row, in advance of which a hiatus exists. The true molars are composed of four lobes resembling those of recent musks, but they possess a peculiar generic distinction, which is a tubercle rising out of the base antero-internally of the postero-internal lobe, about one-third the size of the lobes themselves, and appearing as if it was a rudimentary fifth lobe. The third premolar consists of two lobes as in the musks, and the anterior two premolars in section are trilateral and consist of a broad external and a narrow internal lobe.

The lower true molars are like those of the musks, but in the last of the series the ordinary fifth lobe of ruminants is notched so that there are actually six lobes to the tooth. The last premolar is worn in the specimen into a surface, resembling in some degree the figure 3 in shape. In comparison with *Moschus Javanicus* the forehead of *Leptomeryx Evansi* has about the same inclination forward and is almost as broad; but the sagittal crest is longer and the temporal fossæ are more horizontal and more capacious; the orbits are smaller and more directed upward; the zygoma is deeper; the post orbital arch is more vertical, and, if the specimen is a correct representative of the species, it is open for about a line; the glenoid articulation is more deeply concave, and it possesses a strong post glenoid tubercle; the auditory bullæ are much smaller; and finally the inion is broader.

Measurements.

Length from occipital condyles to first molar	2 in.	10 lines.
Breadth at zygomata	2 "	
Length of upper molar series	1 "	4 "
" series of lower true molars		11 "
Transverse diameter of orbit		10 "
Vertical " "		9 "

The species I have named in honor of its discoverer, Dr. John Evans.

Of turtles the collection contains numerous carapaces, which present such a gradation of form, size and growth to the five species described in the "Ancient Fauna of Nebraska," that I feel doubtful whether there is more than one species among them, for all appear to me to be only different ages of *Testudo lata*, the only one which was represented as full grown, as indicated by the sutural connexion of the costal with the marginal plates.

(The specimens upon which were established the new species and genera in this communication were exhibited by Dr. Leidy to the members.)

ELECTIONS.

Dr. G. Emerson, of Philadelphia, was elected a *Member*, and the Rev. Thomas G. Porter, of Lancaster, Pa., was elected a *Correspondent*.

September 6th, 1853.

Vice-President **Bridges** in the Chair.

A communication was presented from Dr. M. C. Read, of Hudson, Ohio, entitled "Notes on the Birds of Northern Ohio," which was referred to Mr. Cassin, Dr. Wilson, and Dr. Leidy.

Major Le Conte presented a paper intended for publication, describing a new species of Păcāne Nut; which was referred to Dr. Zantzinger, Dr. Bridges, and Mr. Durand.

A communication was read from the American Philosophical Society, dated September 5th, 1853, acknowledging the receipt of No. 9, Vol. 6, of the Proceedings.

September 20th.

Vice-President **Bridges** in the Chair.

Major Le Conte read a letter from Mr. J. Barnard Davis, dated Shelton, Staffordshire, England, August 20th, 1853, relative to the proposed issue by subscription of a new work, "Crania Britannica."

A letter was read from the Secretary of the Trustees of the New York State Library, dated September 16th, 1853, acknowledging the receipt of the Proceedings, No. 9, Vol. 6.

September 27th.

The President, Mr. Ord, in the Chair.

The Committee on Mr. Read's communication on the Birds of Northern Ohio, reported in favor of publication in the Proceedings.

Catalogue of the Birds of Northern Ohio.

By M. C. Read, of Hudson, Ohio.

1. **Falco columbarius**, Linn.
Frequently seen in autumn and the early part of winter, though not very abundant.

2. **Falco sparverius**, Linn.
Very common from early spring to late in the fall.

3. **Falco peregrinus**, Gmel.
Rarely seen.

4. **Falco Cooperii**, Bonap.
Rarely seen.

5. **Falco fuscus**, Gmel.
Common.

6. **Falco furcatus**, Linn.
Occasionally visits the southern counties of the Reserve.

7. **Falco hyemalis**, Wil.
Abundant during the whole year.

8. Falco borealis, Gmel.
Also abundant.

9. Falco Pennsylvanicus, Wil.
Frequently seen.

10. Falco lineatus, Wilson.
Common through the summer.

11. Falco chrysaetos, Linn.
Is often seen on the lake shore, and it is said that a pair have nested for several years in a high tree on a woody point of the shore near Sandusky Bay. The Rev. Samuel Wright, of Toledo, now deceased, wrote me in the winter of 1852 that he then had a young bird of this species, which was quite tame and a very interesting pet. It fully answered the description of the "ring-tailed eagle." After the death of Mr. Wright it was promised to the writer, but escaping from confinement, though accustomed to obey promptly the voice of its old master, it could not be recaptured, and at the last accounts was still lingering about the neighborhood of the city.

12. Falco Washingtonii, Aud.
I am also indebted to Mr. Wright for my only knowledge of this bird as a resident of northern Ohio. The following is extracted from one of his letters. "I have recently obtained a fine specimen of the Washington eagle, which differs from the description of Nuttall and Audubon in several respects, the most striking of which is the color of the cere, which in my specimen is *black*. Length three feet, alar extent seven feet, weight ten pounds, spread of the foot six inches." The specimen was obtained near Toledo.

13. Falco leucocephalus, Linn.
Is not uncommon. Observed a pair during the last spring in Trumbull county.

14. Cathartes aura, Linn.
Still frequently seen, though by no means as common as it was a few years ago.

15. Strix nyctea, Linn.
Is seen every season during the coldest part of the winter.

16. Strix naevia, Gmel.
Have obtained two or three specimens.

17. Strix Asio, Linn.
More abundant than the preceding, though sometimes confounded with it. I think it a distinct species.

18. Strix Virginiana, Gmel.
Very abundant.

19. Strix brachyotus, Linn.
Occasionally seen in small flocks in midwinter.

20. Strix nebulosa, Linn.
Abundant.

21. Strix acadica, Gmel.
More abundant than the red or mottled.

22. Sturnella Ludoviciana, Linn.
Very abundant.

23. Icterus Baltimore, Linn.
Common.

24. Icterus spurius, Gmel.
Not as abundant as the preceding.

25. Icterus phœniceus, Linn.
Very abundant.

26. Icterus pecoris, Temm.
Has increased rapidly of late and is now common. Can scarcely take a walk during the middle of the summer without observing some foster mother in charge of a young bird of this species. To the list of its nurses I can add the common snow bird, the scarlet tanager, and the chestnut-sided warbler.

27. Icterus agripennis, Bon.
Very abundant.

28. Quiscalus versicolor, Vieill.
Very abundant.

29. Quiscalus ferrugineus, Lath.
Seen in small numbers, in company with other species, in the spring, and in small flocks in the latter part of the summer and early in the fall.

30. Corvus corax, Linn.
Frequently seen, though not as abundant as formerly.

31. Corvus corone, Linn.
Very abundant.

32. Garrulus cristatus, Aud.
Abundant throughout the year.

33. Parus bicolor, Linn.
Common throughout the year.

34. Parus atricapillus, Linn.
Abundant.

35. Bombycilla garrula, Vieill.
Visits us in small numbers every year.

36. Bombycilla Carolinensis, Bris.
Common. In default of their ordinary fare. I have noticed these birds feeding eagerly upon the *petals* of the apple blossoms:

37. Lanius Septentrionalis, Gm.
Rare.

38. Tyrannus intrepidus, Vieill.
Common.

39. Tyrannus crinitus, Swains.
Often seen in thick woods on the borders of streams.

40. Tyrannus fuscus, Nutt.
Very common.

41. Tyrannus virens, Nutt.
Frequently seen.

42. Tyrannus acadicus, Nutt.
Very abundant.

43. Tyrannus Traillii, Nutt.
Rare.

44. Setophaga ruticilla, Swains.
In many localities the woods are full of them.

45. Sylvania mitrata, Nutt.
Shot a single, well marked specimen in Richmond, Ashtabula co., May, 1853.

46. Sylvania cœrulea, Nutt.
Abundant.

47. Icteria viridis, Bon.
Nests here in limited numbers.

48. VIREO FLAVIFRONS, Vieill.
Abundant through the summer.

49. VIREO NOVEBORACENSIS, Bon.
Abundant through the summer.

50. VIREO GILVUS, Bon.
VIREO OLIVACEUS, Bon.
Abundant through the summer.

51. MIMUS POLYGLOTTUS, Boie.
Rarely seen. Single pairs nest in particular localities nearly every season.

52. MIMUS RUFUS, Bon.
Common.

53. MIMUS FELIVOX, Bon.
Very abundant.

54. TURDUS MIGRATORIUS, Lin.
Abundant in summer, and remains in small numbers through the year.

55. TURDUS MUSTELINUS, Gmel.
Common.

56. TURDUS SOLITARIUS, Wilson.
Not so common as the preceding, but frequently seen.

57. TURDUS WILSONII, Bon.
Very abundant.

58. TURDUS NOVEBORACENCIS, Lath.
Common.

59. TURDUS AUROCAPILLUS.
Not abundant.

60. SYLVICOLA CORONATA, Swains.
Abundant for a few days in the spring.

61. SYLVICOLA RUFICAPILLA, Bon.
In smaller numbers in spring.

62. SYLVICOLA ÆSTIVA, Swains.
Abundant throughout the summer.

63. SYLVICOLA MACULOSA, Swains.
Abundant in spring; have also seen them in midsummer, apparently carrying food to their young.

64. SYLVICOLA PARDALINA.
A transitory visitor, but not rare.

65. SYLVICOLA MARITIMA, Swains.
Occasionally seen in the spring.

66. SYLVICOLA PENSILIS, Bon.
Seen occasionally in summer, and *probably* nests here.

67. SYLVICOLA VIRENS, Swains.
Visits us in company with the other warblers, a part remaining through the season.

68. SYLVICOLA BLACKBURNIÆ, Jard.
Rare.

69. SYLVICOLA ICTEROCEPHALUS, Swains.
Undoubtedly nests here in considerable numbers.

70. SYLVICOLA CASTANEA, Swains.
Abundant in the spring, have noticed it as late as the last of June.

71. Sylvicola striata, Swains.
A spring visitant, a few probably nest here.

72. Sylvicola discolor, Bon.
Occasionally nests here.

73. Sylvicola Americana, Aud.
Common in the spring, a few spend the summer.

74. Sylvicola canadensis.
Have obtained many specimens, but in the spring only.

75. Sylvicola formosa, Wil.
Rare, but a summer resident.

76. Trichas Marylandica, Bon.
Very abundant.

77. Trichas agilis, Nutt.
Described as a rare bird. In the summers of 1850 and 1851 it was one of the most common birds, in a dry field overgrown with brambles, in Andover, Ashtabula county. It doubtless nested there in large numbers.

78. Vermivora Pennsylvanica, Swains.
Occasionally seen in the spring.

79. Vermivora solitaria, Swains.
Most frequently seen in the spring, at no time abundant.

80. Vermivora chrysoptera, Swains.
Rarely seen in the spring.

81. Vermivora peregrina, Bon.
Rare.

82. Vermivora rubricapilla, Swains.
The most abundant of the Vermivoras.

83. Troglodytes aedon, Vieill.
Abundant.

84. Troglodytes hyemalis, Vieill.
Mainly a winter resident, a few spend the summer.

85. Troglodytes ludovicianus, Bon.
Occasionally seen.

86. Troglodytes brevirostris, Nutt.
Not abundant.

87. Troglodytes palustris, Bon.
Common.

88. Regulus calendula, Licht.
Common. Have shot them in pairs in the middle of summer, one answering the description of the male, the other plainer and without the ruby crown.

89. Regulus tricolor, Aud.
Common, and like the preceding remains in pairs throughout the summer.

90. Sialia Wilsonii, Swains.
Common.

91. Anthus ludovicianus, Licht.
A transient visiter. Rare.

92. Alauda alpestris, Linn.
Occasionally seen on the lake shore in the spring and fall.

93. Emberiza nivalis, Linn.
Appears suddenly in large flocks during long continued cold weather, sometimes remaining many weeks in the same neighborhood, and again only for a single day.

94. Tanagra rubra, Linn.
Common during the whole summer.

95. Tanagra æstiva, Gmel.
Not so abundant as above—not uncommon.

96. Fringilla cyanea, Wil.
Common in dry bushy fields.

97. Fringilla leucophrys, Wil.
Abundant for a few weeks in the spring.

98. Fringilla Pennsylvanica, Aud.
As the preceding.

99. Fringilla graminea, Gmel.
A common summer bird.

100. Fringilla fasciata, Gmel.
A common summer bird.

101. Fringilla canadensis, Lath.
Abundant in the winter, a few remain the entire year and nest with us; have raised them from the nests.

102. Fringilla socialis, Wil.
Very abundant.

103. Fringilla juncorum, Nut.
Common about the bushy borders of streams.

104. Fringilla iliaca, Lath.
Common in the spring and fall.

105. Fringilla hyemalis, Linn.
Most abundant during the winter, yet common throughout the year.

106. Fringilla palustris, Wil.
Rather common.

107. Fringilla tristis, Linn.
Abundant.

108. Fringilla linaria, Linn.
Abundant during extremely cold weather.

109. Fringilla erythropthalma, Linn.
Common.

110. Fringilla purpurea, Gmel.
Stops a few days in the spring in large numbers. Have obtained a single specimen in Ashtabula county, in the month of August.

111. Cardinalis Virginianus, Bon.
Has become quite numerous, and remains during the entire year; have shot them in January, thermometer at 0°.

112. Coccothraustes ludovicianus, Nut.
Nests in large numbers on the borders of streams, and in the neighborhood of cranberry marshes.

113. Corythus enucleator, Bon.
Rare, though occasionally seen during most of the year.

114. Loxia curvirostra, Linn.
Occasionally visits us in winter.

115. Conurus Carolinensis, Bon.
A few years ago a flock of these birds appeared in Tallmadge, Summit county, as I was informed by my friend Rev. Samuel Wright. Have myself never seen them in the Reserve.

116. Coccyzus Americanus, Bon.
Not uncommon.

117. Coccyzus dominicus, Nut.
Rather more abundant than the preceding.

118. Colaptes auratus, Swains.
Common.

119. Picus pileatus, Linn.
Still frequently seen, though not as abundant as heretofore.

120. Picus erythrocephalus, Linn.
One of the most common species.

121. Picus Carolinus, Linn.
A common resident of the forest, rarely seen in cultivated fields.

122. Picus varius, Wil.
Not uncommon.

123. Picus villosus, Linn.
Very abundant.

124. Picus rubricapillus, Nut.
Have obtained four or five well marked specimens only.

125. Picus pubescens, Bon.
Very abundant.

126. Picus medianus, Nutt.?
A small woodpecker answering to the description of this bird, as given in the later edition of Nuttall, is one of our most abundant species.

127. Sitta carolinensis, Bris.
Very abundant.

128. Sitta canadensis, Linn.
Not so abundant as the preceding.

129. Certhia Americana, Bon.
A common bird at all seasons.

130. Mniotilta varia, Vieill.
Rather common during the summer.

131. Trochilus colubris, Linn.
Common.

132. Alcedo alcyon, Linn.
Common.

133. Hirundo purpurea, Linn.
A village resident, though not as abundant as heretofore.

134. Hirundo rufa, Gmel.
Abundant. Have noticed a few *albinos*.

135. Hirundo fulva, Vieill.
Prof. Kirtland first noticed the appearance of this bird in Northern Ohio, in 1838. They had then appeared in Columbiana county. They are now abundant, and in some townships almost every barn is lined under the eaves with their nests.

136. Hirundo bicolor, Vieill.
Not very abundant, though by no means rare.

137. Hirundo riparia, Linn.
Abundant in favorable localities.

138. Chaetura pelasgia, Steph.
Common.

139. **CAPRIMULGUS VOCIFERUS**, Bon.
Common upon our dry oak lands, rarely seen or heard elsewhere.

140. **CAPRIMULGUS VIRGINIANUS**, Briss.
Common.

141. **COLUMBA CAROLINENSIS**, Linn.
Common.

142. **COLUMBA MIGRATORIA**, Linn.
Two years ago last spring I noticed the pigeons in vast numbers, in the fields, feeding upon the dead grasshoppers, the remains of the countless horde which well nigh devoured "every green thing" during the preceding summer and fall.

143. **MELEAGRIS GALLOPAVO**, Linn.
Still common.

144. **ORTYX VIRGINIANA**, Steph.
Abundant.

145. **TETRAO UMBELLUS**, Linn.
Common in particular localities of limited extent.

(To be continued.)

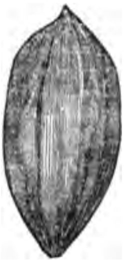
The Committee on Major Le Conte's description of a new Pacane Nut, reported in favor of publication in the Proceedings.

Description of a new species of the Pācāne Nut.

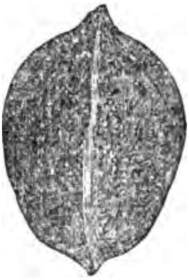
By JOHN LE CONTE.

This species of Hickorea, which I found cultivated in Georgia, is a native of the State of Texas. The small altitude which it attains, the later period of its foliation, and the very different form of the nut, readily distinguish it from every other hitherto described. I have adopted Mr. Rafinesque's name, Hickorea, for the genus, in preference to Mr. Nuttall's Carya, on the ground of priority. Whatever may have been the errors or aberrations of Rafinesque, Nuttall was not justified in changing a name proposed by the former, years before any publication of his own.

HICKOREA TEXANA.—Tree about ten feet high. Leaves 13 inches long, frequently rather over than under this measurement, composed of 6 or 7 pairs of leaflets, scarcely petiolated, with a terminal odd one on a rather long petiole; leaflets lanceolate acuminate, the lower ones more convex on the upper than the lower edge, dentate on the upper edge from about one third the distance from the base; the lower edge is always most entire, except a few small teeth near the point. The terminal leaflet is dentate on both edges, but not near the base; nut somewhat ovate, pointed at the upper extremity, less so at the lower, flattened, somewhat rough, and slightly angled; 1·4 inch long, 1 inch broad.



H. OLIVÆFORMIS.



H. TEXANA.

Differs from H. olivæformis or common Pacane nut, in being a much smaller tree, seldom being more than 10 or 12 feet high, whilst the other frequently reaches to 80 or 90 feet; in the smaller size of the leaves, which rarely exceed 14 inches in length, the leaflets being 4 or 5 inches long, whilst the H. olivæformis has the leaves from 19 to 20 inches long and the leaflets 7 inches; but most peculiarly in the shape of the nut; this, in our species, is ovate, flattened, although protuberant on the sides and rough; in the other very smooth, cylindrical, pointed at each end. The leaves of the H. olivæformis are fully formed before this species shows the least sign of foliation.

The Report of the Corresponding Secretary was read and adopted.

The following amendment to Article I, Chapter 8, of the By-Laws was adopted:

"Any Specimen belonging to the Academy and not presented under restrictions, may be loaned to Members and Correspondents, for purposes of scientific investigation, by consent of three-fourths of the Curators, and for a period not exceeding three months: any person to whom specimens may be loaned, shall first deposit with the Curators a sum, in cash, not less than fifty dollars, which they may deem necessary to ensure the safe return of the specimens; and he shall also be subject to a fine, equal in amount to one-third of the security given, for each month that the specimens may be retained beyond the time specified for their return. The specimens loaned, together with the date at which their return may be due, shall be reported to the Academy by the Curators, at the meetings for business in March, June, September and December."

ELECTIONS.

Mr. Percival Collins, and Dr. S. Wier Mitchell, both of Philadelphia, and Edward F. Sanderson, Esq., of New York, were elected *Members;*

And the Rev. Charles Fox, of Michigan, Philo R. Hoy, M. D., of Racine, Wisconsin; J. S. Newberry, M. D., of Cleveland, Ohio, and the Rev. A. C. Barry, of Racine, Wisconsin, were elected *Correspondents.*

October 4*th.*

Vice-President BRIDGES in the Chair.

Letters were read

From Dr. R. W. Gibbes, dated Columbia, S. C., September 16, 1853, transmitting a cranium and other Indian remains.

From the New York Lyceum of Natural History, dated Sept. 27, 1853, acknowledging the receipt of the Proceedings, No. IX, Vol. 6.

From the Royal Mineralogical Society of St. Petersburg, dated Dec. 3, 1852, acknowledging the receipt of a late number of the Journal, and transmitting the volumes of their Transactions announced this evening.

October 11th.

Dr. RUSCHENBERGER in the Chair.

Major Le Conte presented a paper for publication in the Proceedings, entitled "Descriptions of three new species of Arvicola, with remarks upon other North American Rodents," which was referred to Dr. Hallowell, Dr. Leidy, and Dr. B. H. Coates.

A letter was read from the Secretary of the Geological Society of Germany, dated Berlin, 10th July, 1853, accompanying volumes of their publications, and desiring those of the Academy in exchange.

Also a letter from the Secretary of the Trustees of the New York Lyceum, dated Albany, October 4th, 1853, acknowledging the receipt of No. X, Vol. 6, of Proceedings.

other, as in the wolf, but more nearly equal in size and forming together more of a triangle.

Measurements.

Length of cranium from occipital condyle to the narrowest portion of the former, which is just in advance of the bifurcation of the sagittal crest	3 in.	5 lines.
Breadth of cranium at most prominent part	1 "	11 "
" " where narrowest		10 "
Depth of lower jaw below last molar	1 "	
Antero-posterior diameter of last lower molar		2½ "
" " penultimate lower molar		4 "
" " ante-penultimate "		7 "
Transverse diameter of last upper molar		2½ "
" " penultimate "		5½ "
" " ante-penultimate molar		7½ "

1. LEPTOMERYX EVANSI, *Leidy*.—This is established upon a cranium which has lost the nose, and is broken at the parietal region. The specimen contains upon one side all the molars, six in number, and upon the other side the posterior four molars; and it is accompanied by a portion of the lower jaw containing the true molars and the last premolar.

The genus is closely allied to the existing *Moschus*, and the species was about the size of the *M. Javanicus*. The six superior molars form a closed row, in advance of which a hiatus exists. The true molars are composed of four lobes resembling those of recent musks, but they possess a peculiar generic distinction, which is a tubercle rising out of the base antero-internally of the postero-internal lobe, about one-third the size of the lobes themselves, and appearing as if it was a rudimentary fifth lobe. The third premolar consists of two lobes as in the musks, and the anterior two premolars in section are trilateral and consist of a broad external and a narrow internal lobe.

The lower true molars are like those of the musks, but in the last of the series the ordinary fifth lobe of ruminants is notched so that there are actually six lobes to the tooth. The last premolar is worn in the specimen into a surface, resembling in some degree the figure 3 in shape. In comparison with *Moschus Javanicus* the forehead of *Leptomeryx Evansi* has about the same inclination forward and is almost as broad; but the sagittal crest is longer and the temporal fossæ are more horizontal and more capacious; the orbits are smaller and more directed upward; the zygoma is deeper; the post orbital arch is more vertical, and, if the specimen is a correct representative of the species, it is open for about a line; the glenoid articulation is more deeply concave, and it possesses a strong post glenoid tubercle; the auditory bullæ are much smaller; and finally the inion is broader.

Measurements.

Length from occipital condyles to first molar	2 in.	10 lines.
Breadth at zygomata	2 "	
Length of upper molar series	1 "	4 "
" series of lower true molars		11 "
Transverse diameter of orbit		10 "
Vertical " "		9 "

The species I have named in honor of its discoverer, Dr. John Evans.

Of turtles the collection contains numerous carapaces, which present such a gradation of form, size and growth to the five species described in the "Ancient Fauna of Nebraska," that I feel doubtful whether there is more than one species among them, for all appear to me to be only different ages of *Testudo lata*, the only one which was represented as full grown, as indicated by the sutural connexion of the costal with the marginal plates.

(The specimens upon which were established the new species and genera in this communication were exhibited by Dr. Leidy to the members.)

ELECTIONS.

Dr. G. Emerson, of Philadelphia, was elected a *Member*, and the Rev. Thomas G. Porter, of Lancaster, Pa., was elected a *Correspondent*.

September 6th, 1853.

Vice-President **Bridges** in the Chair.

A communication was presented from Dr. M. C. Read, of Hudson, Ohio, entitled "Notes on the Birds of Northern Ohio," which was referred to Mr. Cassin, Dr. Wilson, and Dr. Leidy.

Major Le Conte presented a paper intended for publication, describing a new species of Păcāne Nut; which was referred to Dr. Zantzinger, Dr. Bridges, and Mr. Durand.

A communication was read from the American Philosophical Society, dated September 5th, 1853, acknowledging the receipt of No. 9, Vol. 6, of the Proceedings.

September 20th.

Vice-President **Bridges** in the Chair.

Major Le Conte read a letter from Mr. J. Barnard Davis, dated Shelton, Staffordshire, England, August 20th, 1853, relative to the proposed issue by subscription of a new work, "Crania Britannica."

A letter was read from the Secretary of the Trustees of the New York State Library, dated September 16th, 1853, acknowledging the receipt of the Proceedings, No. 9, Vol. 6.

September 27th.

The President, **Mr. Ord**, in the Chair.

The Committee on Mr. Read's communication on the Birds of Northern Ohio, reported in favor of publication in the Proceedings.

Catalogue of the Birds of Northern Ohio.

By M. C. **Read**, of Hudson, Ohio.

1. **Falco columbarius**, Linn.
Frequently seen in autumn and the early part of winter, though not very abundant.

2. **Falco sparverius**, Linn.
Very common from early spring to late in the fall.

3. **Falco peregrinus**, Gmel.
Rarely seen.

4. **Falco Cooperii**. Bonap.
Rarely seen.

5. **Falco fuscus**, Gmel.
Common.

6. **Falco furcatus**, Linn.
Occasionally visits the southern counties of the Reserve.

7. **Falco hyemalis**, Wil.
Abundant during the whole year.

Hair above dark plumbeous tipt with brown and black, beneath dark slate-colored mixed with brown, particularly on the breast, the upper and under sides of the body being nearly alike. Head large and blunt; ears rounded, longer than the fur, outwardly hairy, inwardly only so on the upper margin; antitragus large, semicircular; whiskers black and grey, shorter than the head. Feet covered with shining grey hair; thumb tubercle with a compressed, sharp, hooked nail. Tail slender, thinly covered with short hair, above mixed brown and black, beneath brownish grey.

Length in. 5·5; head 1·3; ears ·8; fore leg 1·1; hind leg 1·5; tail 1·4.

4. Arvicola riparius. Brevis et robustus, antice quam postice latior. Supra fuscus, per dorsum subnigricans, subtus cinereus. Capite obtuso, auribus sub pilis occultis, antitrago magno. Cauda pilis brevibus bene vestita, supra nigra, subtus pallidissime fusca.

Hab. In paludibus provinciarum borealium. (Phila., Mr. Ord.) A. riparius Ord., Journ. Acad. Nat. Sci., vol. iv. p. 305. A. pennsylvanica. Richardson, Fauna boreali americana, vol. i. p. 120. Idem Audubon and Bachman Quadrupeds of N. America, vol. i. p. 341. Id. Wagner's Suppl., vol. iii. p. 588. Id. Schinz, vol ii. p. 247. A. hirsutus Dekay, Zoology of New York, vol. i. p. 86.

Body short and robust, broader before than behind. Hair dark lead color, above tipt with brown, darker along the back, beneath with grey. Head short, larger and blunter than in any other species; ears short, rounded, hairy both within and without, entirely concealed under the fur; antitragus large, semicircular, nearly closing the auditory aperture; legs and feet brown, the latter covered with short, shining hair; thumb tubercle, with a short compressed sharp nail. Tail well covered with hair, above dusky, beneath very pale brown.

Length 6 inches; head 1·4; breadth of head 1·8; ears .4; fore leg 1 in.; hind leg 1·8; tail 1·3.

Swims and dives well; is found peculiarly on the marshes of those rivers where the Zizania aquatica grows. As there is a considerable difference in the teeth of some of these animals, I have, whenever it was in my power, pointed out their peculiarities. With the exception of one species which will be mentioned hereafter, they differ much from those of Europe. Unfortunately I have not been able to obtain crania of many of those here described, otherwise certain distinctive marks might have been obtained, which would have rendered their determination much more easy.

System of Dentition.—In the upper jaw the first molar is composed of 5 triangles, 1 anterior, 2 exterior and 2 interior; the second of 4 triangles, 1 anterior, 2 exterior and 1 interior, with a small posterior, rounded lobe; the third of 5 triangles, 1 anterior, 2 exterior very small, 2 interior, and ends in a treffle, the exterior lobe of which is nearly obliterated, leaving a plane space from the end of the tooth to the posterior triangle.

From this arrangement it results, that the line of teeth in the upper jaw consists externally of 9 salient and 9 re-entering angles, the two last of each small, and internally of 10 salient and 8 re-entering angles, exclusive of the interior emargination of the treffle.

In the lower jaw the first molar commences with a treffle, then follow 6 triangles, 2 exterior, 3 interior and 1 posterior; the second of 5 triangles, 2 exterior, 2 interior and 1 posterior; the third of 3 triangles, 1 anterior, 1 intermediate and 1 posterior; and the line of teeth is formed externally of 11 salient angles, including the exterior lobe of the treffle, and 9 re-entering angles, including the concavity of the side of the treffle, and internally of 11 salient and 11 re-entering angles, including the lobe and the emargination of the treffle.

5. Arvicola Oneida. Supra niger, pilis sparsis fuscis intermixtus, pluribus super caput et ad genas, lateribus et abdomine saturate plumbeis, hujus pilorum extremitatibus fuscis, illorum pallidioribus et cinereis. Auribus subpilis occultis. Cauda supra nigra, subtus nigrante.

Hab. A Noveboraco ad Pennsylvaniam. Arv. Oneida Dekay, Zoology of New York, l. c. p. 88.

Hair short and close, not shining; on the back black, with scattering brown

more numerous on the head and cheeks; dark plumbeous on the sides and
the hairs of the first tipt with brown, of the other with grey and light
ı. Head very moderately blunt; lips white; ears small, rounded, hairy
within and without, and concealed under the fur; antitragus large, semicir-
Feet dusky, covered with short hair; thumb with a compressed, rounded
Tail above black, beneath dusky, very slightly covered with hair.
ıgth 5·2· ; head 1.1.; ears ·125; fore leg ·9; hind leg 1·4; tail 1·4.
l by Bachman to be the Arv. pinetorum, to which it bears very little re-
lance.

Arvicola nasutus. Capite satis magno, magis quam in cæteris producto.
ıus ovalibus extra pilos exstantibus. Cauda bene vestita, supra fusca,
s cinerascente.
b. Cum priore. A. nasuta Bach., Journ. Acad. Nat. Sci., vol. viii. p. 296.
ısutus Wiegman, Arch. for 1843, part 2 p. 53. A. noveboracensis Rich.,
p. 84. A. palustris Harlan, Fauna Americana, p. 136; Schinz. l. c. p.

ir dark plumbeous, above about equally tipt with dark and light brown,
g somewhat of a hirsute appearance, of a uniform mixed color over all the
r parts, beneath dark cinereous tipt with grey. Head moderately large,
elongated than in others. Ears oval, projecting beyond the fur, hairy both
n and without; antitragus moderate, semicircular. Feet covered with
ıg, pale brown hair: thumb tubercle, with a compressed, curved, blunt
Tail well covered with hair, above dark brown, beneath greyish.
ngth 6·5; head 1·8; ears ·35; fore leg ·8; hind leg 1·4; tail 1·2.
ave not, myself, met with this species any where but in Pennsylvania, but
'e heard of it in almost all the Northern States. It has been confounded by
ardson with the A. noveboracensis of Rafinesque, which it very much re-
ıles, but is easily told by the longer and narrower head, and by a difference
e upper incisors. Dr. Harlan, in his Fauna Americana, wishing to deprive
Ord of the merit of having first described the A. riparius, published this
ies under the name of A. palustris, and quoted A. riparius as a synonym.
ıwn ignorance defeated him in this project, and made his ill faith more ap-
ıt. Had he only been honest, he would have consulted Mr. Ord on the
ity of the two animals, and then might have justly claimed this species as
wn.

Arvicola Pennsylvanicus. Capite satis magno et obtuso, dentibus primo-
ı superioribus margine interiore leviter subsulcatis. Auribus brevibus sub-
occultis, antitrago magno, auris aperturam omnino occludente.
ıb. In provinciis borealibus. (Phila., Mr. Ord.) Arv. pennsylvanicus Ord.
iparius Rich., l. c. p. 120. A. xanthognathus Dekay, l. c. p. 90. Lem-
noveboracensis Raf. A. pennsylvanicus Wagner, l. c. p. 589; Schinz., l.
. 247.
ıir long, soft and glossy, dark lead color, above tipt with brown intermixed
ı longer black hairs, beneath tipt with shining grey. Head moderately blunt
large, upper incisors very slightly sulcate on the inner edge; lips white;
oval, projecting a little beyond the fur, hairy both within and without; an-
gus large, semicircular, entirely closing the auditory passage; feet dark
rn, covered with short shining hair; thumb tubercle with a short, com-
sed, blunt nail. Tail depressed, well covered with hair, black, beneath a litile
r.
ength 7 in.; head 1·4; ears ·25; fore leg ·9; hind leg 1·7; tail 1·8.
he dentition is nearly the same as of the A. riparius. In the upper jaw the
erior interior angle is furnished with a small, sharp, posterior lobe, and the
d molar of the lower jaw terminates in a roundish piece, which is so cut by
last re-entering angle on its inner side as to form another interior salient
e, whence the interior line of teeth in the lower jaw is composed of 12 salient
11 re-entering angles.
his species, first described by Mr. Ord, is probably the one confounded by

Pennant with the Arv. agrestis of Europe. It is very easily distinguished from any other of the genus that I have seen in America, by the furrow on the inner margin of the superior incisors, and by the large antitragus of the ear, which completely closes up the auditory passage as with a valve, the last character showing that it is peculiarly fitted for an aquatic life. It is generally pointed out by American naturalists as the A. xanthognathus of Leach, a species which I have never had the good fortune to see, and which I scarcely believe has ever been found far from the Arctic regions. As for its habits, it delights in marshy places, and swims and dives with much dexterity. It leaves the lower grounds, however, and is often found in upland meadows. Formerly it was very common in the vicinity of New York. This was before the advance of population on that favored spot had destroyed everything connected with nature, except the vices of man.

There is generally quoted in connection with this species of Arvicola, a figure in Wilson's Ornithology, vol. vi., pl. 50, which has nothing characteristic about it, and may as well be said to represent anything else.

8. Arvicola borealis. Capite magno et obtuso, auribus brevibus, sub pilis occultis. Tarso subtus dense piloso. Cauda sparse pilosa, supra nigrante, subtus fusco cinerea.

Hab. In provinciis borealibus. (R. Island, Mr. Powel.) A. borealis Rich., l. c. p. 127. Wiegman's Archiv., 1843, part 2, p. 53. Schinz., l. c., p. 251. Wagner, l. c. 593.

Hair very shining, dark plumbeous, above and on the sides tipt with bright brown and black, so as to have a somewhat variegated appearance, beneath with gray very slightly tinged with brown. Head large, short and blunt; ears round, entirely concealed under the fur, hairy both within and without; antitragus large, semicircular. Feet light cinereous brown, covered with short shining hair, the tarsi beneath densely hairy; thumb tubercle, with a short, straight blunt nail. Tail thinly covered with hair, above dusky, beneath brownish grey.

Length in. 6·2; head 1·3; ears ·25; foreleg ·9; hind leg 1·7; tail 2.

9. Arvicola californicus. Subvariegatus rufescenti-fusco et nigro. Corpore brevi et robusto, pilis speciem hirsutiei habentibus, revera tamen mollibus et levibus. Auribus submagnis, pene sub pilis occultis. Cauda supra fusca, subtus fusco-cinerea.

Hab. In California. A. Californica Peale, Zool. Expl. Ex. Quadrupeds, 46.

Body short and thick. Hair rather long, very shining, at the roots plumbeous black, above and on the sides tipt with reddish brown and black in such a manner as to give it a hirsute appearance, which in reality it does not possess, beneath with grey. Head blunt; ears rather large, almost concealed under the fur, hairy both within and without. Feet covered with short shining, greyish brown hair; thumb tubercle, with a compressed blunt nail. Tail above brown, beneath cinereous brown.

Length 5·7; head 1·3; ears ·46; fore leg 1; hind leg 1·5; tail 1·5; fur ·45.

The dentition differs from that of A. riparius as follows: In the upper jaw the second interior triangle of the first tooth is furnished with a small, sharp posterior lobe, and the interior triangle of the second has likewise a sharp posterior lobe. In the lower jaw the first tooth is formed of 8 triangles, 1 anterior, which may rather be called an oval, 1 posterior, 3 exterior and 3 interior. The line of teeth in the upper jaw differs in having internally 9 salient and 9 re-entering angles, and in the lower jaw in having externally 10 salient and 9 re-entering angles, and internally 12 salient and 11 re-entering angles.

10. Arvicola occidentalis. Pilis mollissimis et tenuissimis, extremitatibus superioribus rufis sine ulla nigri admistione. Auribus sub pilis occultis. Cauda sub compressa, supra et subtus concolore rufa.

Hab. In territorio Oregonensi. A. occidentalis Peale, l. c., 15.

Hair dark plumbeous, very soft and fine, above tipt with bright rufous without any admixture of black, beneath with grey. Head blunt; ears round, entirely concealed under the fur, hairy only on the outside; antitragus rather shorter than usual. Feet covered with short shining, rufous hair; thumb tubercle, with a compressed sharp nail. Tail slightly compressed, rufous, of the same color both above and below.

The dentition is the same in every respect as in Arv. riparius.

We are indebted for this pretty animal, as well as for the preceding species, to the researches of Mr. Titian Peale, who was one of the Naturalists of the United States Exploring Expedition, under the command of Capt. Wilkes.

11. ARVICOLA PINETORUM. Pilis plumbeo-nigris, supra extremitatibus fuscis, subtus argenteo-cinereis. Oculis minimis, vix evidentibus. Auribus sub pilis occultis. Pedibus brevibus. Cauda brevi, obtusa, pilosa.

Hab. In Carolina et Georgia in cultis. Vulg. Mole Rat or Ground Mouse. Psammomys pinetorum Leconte, Ann. Lyc. 2, 133, tab. 2. Arv. pinetorum Aud. and Bach. Quadr. N. A., Vol. ii. p. 216. Wagner, l. c. p. 591. Schinz., l. c. p. 249.

Body cylindrical. Hair short, shining, plumbeous black, above tipt with brown, beneath with silvery grey. Head large, short and blunt; eyes very small, scarcely visible; ears small, roundish, hairy within and without, entirely concealed under the fur: antitragus short, flat, semicircular. Legs short, brown, covered with short shining hair; thumb tubercle, with a compressed, curved nail; nails of the toes long and slender, naked (no hairs projecting over them as in every other species.) Tail very short, blunt and hairy.

Length 3·8; head 1·1; ears ·15; fore leg ·7; hind leg ·8; tail ·7.

The dentition of this species, and of the following, differs very much from that of any others which I have examined. The molars in the upper jaw are precisely like those of the common European species; while in the lower jaw they are widely different. Upper jaw: the first molar is composed of 5 triangles, 1 anterior, 2 exterior and 2 interior; the second of 4 triangles, 1 anterior, 2 exterior and 1 interior: the impressed spaces on the crowns of the teeth, in the posterior interior triangle of the first and second teeth, are rectangularly oblong; the third molar is formed of three triangles, 1 anterior, 1 exterior and 1 interior, and ends in a three-sided piece, which is rounded at its apex, and deeply cut into on the interior side by the last re-entering angle. The upper line of dentition consists externally, of 9 salient and 8 re-entering angles, and internally, of 8 salient and 7 re-entering angles. In the lower jaw the first tooth begins with a treffle, then follow 6 triangles, 2 exterior, 3 interior and 1 posterior; the second of 5 triangles, 2 exterior, 2 interior and 1 posterior; the third is narrowed anteriorly, and formed of 3 triangles, 1 anterior, 1 intermediate and 1 posterior.

The lower line of teeth consists, externally, of 7 salient and 6 re-entering angles, with two emarginations on the external face of the last tooth, internally, of 11 salient and 10 re-entering angles.

Previous to the year 1810, this little animal, although well known in the pine region of lower Georgia for its depredations in the cultivated fields of the inhabitants, had not made its appearance in the oak lands. The first one that I ever saw was at that time brought to me as a great curiosity; since then they have become extremely common, and very destructive to sweet potatoes and ground nuts. How long they have been known in South Carolina I have no means of ascertaining.

Its life is wholly subterranean; it is therefore never seen except when accidentally or designedly turned up from beneath the surface.

12. ARVICOLA SCALOPSOIDES. Capite magno et obtuso; auribus parvis margine solo exteriore piloso, sub pilis occultis, tarso subpiloso. Supra castaneus subtus cinereus.

Hab. In Pennsylvania. A. scalopsoides Bachm. Journ. Acad. Sci., Phil., vol. viii. p. 299.

Hair shining, plumbeous, above tipt with chesnut slightly mixed with blackish, beneath cinereous tipt with grey, the latter color tolerably distinctly separated on the sides from the former. Head large and blunt: ears rounded, hairy inwardly on the upper edge only, concealed under the fur; antitragus small, semicircular; whiskers grey, longer than the head; feet covered with short shining, pale brown hair; carpus and tarsus hairy beneath. Tail well clothed with short hair above and tipt with dark brown, beneath pale brown.

Length 4·7; tail ·8; head 1·2; ears ·17; fore leg ·8; hind leg 1·4.

The dentition is precisely like that of the preceding, the A. pinetorum.

I know nothing of the habits of this animal, but conclude from its large eyes, that its life is not subterranean.

The next genus which I shall examine is Hesperomys; of this I have two new species to describe, one from the North and one from the South, and as an appendage, shall add the Mus Lecontei of Bachman, which is a Reithrodon, and neither a Mus nor a Hesperomys.

Those American animals which were formerly arranged in the genus Mus, have, from a more attentive examination, been removed to this. For a long time naturalists hesitated where to place them; hence, we sometimes find them called Arvicolæ. Mr. Waterhouse finally gave them the name which they now bear. Whether the illustrious author intended by this name to indicate their nocturnal habits, or their western habitat, in either case it is perfectly appropriate. It may well be doubted whether there is a single species of Mus really indigenous to America. There is but one instance which makes me hesitate to assert this positively. In Georgia there is a rat, inhabiting the middle parts of the State, which Dr. Bachman considers as a variety of the Mus Rattus, from which, however, it appears to me to differ very considerably. How it could be imported from abroad and only found in the interior of the country, and there not in cities and among human habitations, I cannot conceive. Why has it not extended everywhere as well as in the more southern States? and why has nothing resembling it ever been described in Europe, whence we have undoubtedly received the Mus Rattus? It may have been brought from Africa or some tropical region, and therefore not able to bear any colder climate than that of Georgia or South Carolina.

The molars of Hesperomys vary from those of Mus in the following particulars: They are proportionally longer and smaller. In Mus they have each three transverse striæ-tubercles; in Hesperomys, the series of teeth present a double row of tubercles not standing perfectly opposite each other, but more or less alternating, and separated in the middle by a deep longitudinal furrow meandering among them; the inner ones of these tubercles in the upper jaw and the outer ones in the lower, seeming to be formed by a reduplication in the sides of the teeth. All the molars have some alternating indentations or folds of the enamel. The first has 2 internally and 1 externally, the rest having one on each side, except H. leucopus, which in the second superior molar has 2 on each side, one of the exterior being smaller. On the two first teeth of the upper jaw there is a small false tubercle at the mouth of each of the indentations. The indentations and the tubercles of the hindmost tooth, both above and below, become early obliterated. In the lower jaw the number of tubercles are similar to what we find in the upper, that is to say the first tooth has 5 tubercles, the second 4, and the third 3. This is the structure of the dentition when the teeth are not altered by age and long use; when, however, the tubercles become ground down, the plicated figures, which formerly were of a determinate and invariable form, become changed, and finally vanish entirely, and the surface of the tooth becomes plain. When the teeth of a Mus are abraded, there are formed on the surface simple oblique furrows across their crowns. I begin with the largest of the genus.

1. HESPEROMYS PALUSTRIS. Pilis cinereis, supra saturatioribus, extremitatibus supernis fuscis et nigris, abdominalibus cinereo-albis. Auribus parvis intus et extus pilosis.

Hab. In Georgiæ et Carolinæ oryzaceis. Mus palustris Harlan, Silliman's Journ., xxxi., 385. Wagner, l. c. p. 543. Arvicola oryzivora Aud. and Bach., Quadrupeds of N. A., vol. iii. p. 214.

Hair cinereous, above darker, tipt with brown and mixed with longer and blacker hairs, which are more numerous on the back, so as to make that part of the body much darker, beneath tipt with grey. Nose rather pointed; ears small, nearly round, clothed both inwardly and outwardly with short hair. Feet covered with short, silvery brown hair, not projecting over the nails. Tail scaly, thinly covered with short hair, more densely on the under side.

Length of the head and body in. 5·5; tail 4·8; head 1·6; ears ·45: fore leg 1·1; hind leg 2·; foot 1·35.

In the short synonomy attached to this species there is more to be found than at first sight meets the eye. It is with much regret that I find myself compelled to adopt Harlan's name, and to consider the very appropriate one proposed by Dr. Bachman as a synonym. The following explanation of the circumstances which force me to this will, I hope, be satisfactory. May it produce an effect quite contrary to what was calculated upon by the author of the name. Dr. Harlan was certainly the first describer of this animal. In natural science the law of priority is inflexible; and a fact made known by a vain and ignorant pretender, or procured, as in the present instance, by dishonorable means, is entitled to the same record as one discovered by the patient and sincere searcher after truth. Dr. Bachman's observations on this subject, in the third volume of the Quadrupeds of North America, seem to imply that, as the name of Arvicola palustris is pre-occupied by Harlan himself, in Fauna Americana, p. 136, the specific name could not be given to the animal before us; but as it is by no means an Arvicola, and as Harlan called it a Mus, (as in his day it would have been called by every one,) the objection is of no avail, and the name must stand. Besides, the A. palustris of Harlan is itself, with him, a synonym of A. riparius, but truly a synonym of A. nasutus; the man's ignorance defeating his dishonest intention to deprive Mr. Ord of the name.

This rat inhabits the inland rice plantations of Georgia and South Carolina; dives and swims with the most perfect ease. It makes its nest among the rice about two feet from the ground, but in the winter burrows in the dams; is very carnivorous, and so nearly resembles the Mus decumanus, or house rat, as at first sight to be taken for it. It is readily distinguished by the shortness and hairiness of the ears.

2. **Hesp. gossypinus.** Supra fuscente-badius, lateribus dilutioribus, subtus cinerascente-albidus. Capite magno, naso elongato, auribus magnis, erectis, rotundis, nigrantibus, extus subnudis.

Hab. In Georgia. Vulg. Cotton Mouse.

Hair dark plumbeous, above on the top of the head and back tipt with brown and dusky, on the other parts with brownish tawny, lightest on the sides, beneath slightly with whitish and cinereous, so that the under side of the body appears greyish, which color is rather abruptly separated from the tawny of the sides, upon which it rises in a curve a little behind the fore legs. Head very large; nose long, projecting, dusky; cheeks tawny; lips white; eyes large and prominent; ears large, round, erect, dusky, almost naked, with a few short, brown, appressed hairs at the base. Nails covered by the hair of the toes. Tail hairy, above dusky, beneath brown.

Length of head and body 4·5; tail 3 inches; head 1·5; ear length ·67, breadth ·66; fore leg 1·1; hind leg 1·9; tarsus ·8.

Younger individuals are not so tawny on the sides as the older. This species is considered by Dr. Bachman as a variety of the next. It is, however, three times as large, and lives in a different manner. It forms its nest under logs and under the bark of decaying trees, generally of cotton, frequently using more than a pound of this material for the purpose.

Fifty years ago this mouse was scarcely known to the inhabitants of the southern parts of Georgia. Since then they have become extremely common, have left the fields and woods, and taken up their abode in barns and dwelling houses. In the year 1809 I first saw and, for my private satisfaction, made a description of this animal. The specimen was a female; and when caught, had two young ones attached to her tail, with which she was endeavoring to escape. I never saw but one other for several years after, I then found, probably in the year 1822, that no animal of this kind was more numerous over the whole of that part of the country.

It differs from the next, H. leucopus, more obviously, in the nose being more prominent, the head larger, and the fore feet not being so different in length from the hind as to cause its usual mode of progression to be by leaps. The proportion between the fore and hind feet in this species being as 1 to 1·75, whereas in H. leucopus it is as 1 to 2.

3. HESP. LEUCOPUS. Supra læte badius interdum prope aurantiacus, subtus niveus, coloribus a se abrupte disjunctis. Capite subobtuso, auribus magnis, erectis, ovalibus, subnudis, margine angustissimo sub-albido.

Hab. In provinciis borealibus. Hesp. leucopus Wagner, Schreber, Suppl. vol. iii. p. 528. Musculus leucopus Rafinesque, Am. Month. Mag., vol. iii. p. 444. Mus leucopus Richardson, l. c. p. 142. Id. Dekay, Zoolog. New York, vol. i. p. 82. Id. Schinz., vol. ii. p. 176. Mus agrarius, var. 2, Turton's Linnæus, vol. i. p. Id. Godman's Fauna, vol. ii. p. 88. Mus sylvaticus Harlan, Fauna, p. 149. (Description translated from Demarest and not applicable.) Arvicola Emmonsii Emmons, Mass. Report. p. 61. Cricetus myoides Gapper, Zool. Jour., vol. v. p. 204. Cricetomys myoides Schinz., l. c. p. 204. Field Mouse, Pennant, Arc. Zool., vol. i. p. 131. Vulg. Jumping Mouse.

Hair dark plumbeous, above tipt with tawny or dark orange, on the top of the head and back with brown and tawny, beneath, for at least two-thirds of the length of the hair with snowy white; the tawny color of the sides very bright, and abruptly separated from the snowy color of the belly, the line of separation very distinct and well defined, and curved upward on the sides both before and behind the forelegs. Head moderately blunt; eyes prominent, black and very lively; nose and lips white; cheeks bright tawny; ears large, erect, oval, blunt, nearly naked, being furnished with short, closely appressed hairs, not in very great quantity, and narrowly margined with whitish. Fore legs generally white on all sides; hind legs outwardly tawny, inwardly white; feet pale flesh color, with closely appressed white hairs projecting beyond the nails. Tail above brownish dusky, beneath cinereous brown. In winter the fur frequently becomes darker colored, being over almost all the upper parts dark cinereous mixed with tawny.

Length in. 3·9; head 1·2; ears height ·55, width ·35; fore leg ·9; hind leg 1·5; tail 2·9; tibia and tarsus 1·8.

Specimens are brought from California and from Oregon that are above much darker colored; the plumbeous color of the lower portion of the hair appearing more distinctly among the tawny tips, which are thus rendered but here and there visible; the upper color is separated from that of the belly as distinctly as in others; the outer side of the fore legs, however, is not white, but of the color of the back. In other specimens, the upper parts are more uniformly brownish tawny, and the belly not so white; the fore legs also are of a dull white. In none of them are the white parts so beautifully snowy. All of them that I have seen had been preserved in alcohol, and were, therefore, more or less unfit for description. There may be really distinct species among them.

This animal burrows in the ground, forming long galleries, and proves very destructive in gardens. It becomes, in some places, impossible to cultivate certain species of bulbous roots, as hyacinths, tulips, &c., without some contrivance by which they may be protected from their depredations. The best method which I have seen used was, surrounding each root with a flower pot, the bottom of which was knocked out. The robber does not penetrate very deep into the earth, he is thus quickly stopped in his progress, and forced to look elsewhere for food. Their usual mode of progression when on the surface is by leaping, hence their name of Jumping Mouse. The name of Deer Mouse is given in Canada to the two species of Jaculus; it is only used in that country, as the Jaculi are so seldom seen in the United States as to be only known to naturalists. In the winter they enter houses, particularly cellars, and support themselves in the same manner as the Mus musculus. In green houses they are extremely destructive to cacti and other succulent plants. I have never known them to form their nests in trees, or to occupy deserted birds' nests; it is another species of this genus which has this habit. This species I have found it impossible to obtain, although formerly quite numerous in the vicinity of New York. M. de Selys Longchamps, in his Micro-mammalogia, pp. 66 and 67, makes some observations on this mouse, and proves that it cannot be the same as the Mus sylvaticus of Europe; he calls it Mus noveboracensis. I cannot find whence he got this name, but should rejoice much to find that it had been proposed by some naturalist before Rafinesque, that we might get rid of the Greek name which is now indissolubly attached to it.

4. HESP. CAMPESTRIS. Supra fuscus, subtus cinereo-fuscus. Capite magno, auribus magnis, ovalibus, obtusis, pilis brevibus sparse vestitis.

Hab. In Nova Cæsarea.

Hair plumbeous black, above tipt with brown, beneath with cinereous brown, darker about the mouth. Head large; ears large, oval, blunt, thinly covered both within and without, with very short, closely appressed hair. Legs and feet brown. Tail well clothed with tolerably long hair.

Length in. 3·1; head 1·2; ears 55·; width ·4; fore leg ·45; hind leg 1·6; tail 2·7.

This species was found in the collection of the Academy, and labelled Mus campestris, from New Jersey. The specimens were preserved in alcohol, and therefore scarcely fit to be described; there was, however, enough to show that they were different from any hitherto described animal.

5. HESP. SONORIENSIS. Supra saturate cinereus fuscescente-cano leviter intermixtus, subtus albescens. Capite elongato, auribus magnis. Cauda modica.

Hab. In provincia Sonoræ.

Hair above dark cinereous or slate color, slightly mixed with brownish grey, more thickly on the head, nose, and behind the ears, and with grey on the sides; beneath whitish, except on the throat, which is mixed slate-color and whitish. Head elongated, pointed; ears large, oval, hairy both within and without, and with a distinct narrow grey margin. Feet covered with short, whitish brown hair. Tail moderate, above dark brown, beneath paler.

Length in. 3·3; head 1·2; ears ·4; fore leg 1·; hind leg 1·6; tail 1·9.

Resembles in some degree the H. leucopus. Collected by the Boundary Commission, under Major Graham.

These are all the species of this genus of which I have specimens at present. Messrs. Audubon and Bachman describe in addition. H. humilis, H. aureolus, H. caroliniensis and H. michiganensis under the genus Mus. With all of these, except the last, I was well acquainted forty years ago.

I cannot omit saying something here of an animal described by Dr. Dekay in the Zoology of the State of New York, vol. i. p. 31, under the name of Mus Americanus. This is certainly a Hesperomys, or a species of one of the allied genera, and not a Mus rattus, as Dr. Bachman supposes. It is some years ago since it was found in the city of New York, and handed to me for examination by Mr. John G. Bell. I took the following notes of it at the time, and had it passed to Dr. Dekay, who was then engaged in writing the Zoology of the State.

The animal was above and beneath of a uniform dark plumbeous black inclining to dusky; head rather blunt; eyes prominent; ears oval, blunt, externally naked, internally sparsely hairy. Feet small, covered with short shining hair; toes white. Tail short; terete, annulosely scaly.

Length of head and body 9·3; tail 5·6; head 2·4; ears ·75; width ·45.

REITHRODON LECONTEI. Supra rufo, fusco et nigrante mixtus, subtus albidus; naribus carunculatis, labris tumidis. Auribus magnis.

Hab. In Georgia. Mus Le Contii Bachman, Jour. Acad. Nat. Sc., vol. viii. p. 307.

Hair plumbeous, above tipt with rufous, dark brown and dusky, the latter color prevailing more on the back. Forehead much arched; eyes large; lips tumid; nostrils each furnished beneath with a small caruncle pointing downwards; ears oval, large, hairy both within and without. Feet very pale flesh color, covered with short cinereous brown hairs. Tail long, nearly naked, above brown, beneath paler.

Length in. 2·5; head ·8; ears ·2; fore leg ·5; hind leg ·8; tail 2 inches.

Very much resembles the common mouse. Burrows in the earth and comes out at night to eat. Its food appears to consist chiefly of green vegetables.

In the preliminary remarks to this memoir, I alluded to a species of Mus inhabiting the Southern States, which might be considered as native and not imported, which was mentioned in Audubon and Bachman's Quadrupeds as a variety of Mus rattus. This animal was known many years ago to Seba, Klein and Brisson, and figured or described by them. The following description of it made many years ago, although some what imperfect, may help to point it out.

Mus Americanus. Hair dark cinereous, above tipped with reddish brown, and dusky with many long scattering hairs of the latter color, beneath with white, having a tinge of yellow particularly towards the sides. Ears rather large, oval, blunt, naked. Feet whitish, covered with short hairs. Thumb tubercle furnished with a short blunt nail. Tail terete, long, annulosely scaly, furnished with short hair.

Hab. In Georgia and Carolina. Mus Americanus Turton's Linnaeus, Vol. I. p. 50. Rattus Americanus Brisson, Regne Animale, p. 172. Mus Americanus Klein, Quad. p. 53. Seba, Vol. II. tab. 29, fig. 2.

This rat was formerly very common in the midland counties of Georgia. I, however, know nothing of its habits. The following measurements were taken from many different specimens. Length of head and body 7.74; tail 7.8; head 2.05; ears .9.

Mus Virginianus. Color entirely white. Ears, feet and tail flesh color. Eyes brown. Ears moderate, blunt, naked. Feet thinly covered with short hair; thumb-tubercle with a short blunt nail. Tail thick, rather blunt, quadrangular, the upper side convex, the others plane, annulosely scaley, with short hairs proceeding from the base of the rings.

Hab. In Texas.

Length h. and b. 7.3; tail 6.2; diameter at root .3, at point .2.

Mus Virginianus Turton, l. c., p. 82. Mus albus virginianus Brisson, l. c., p. 173. M. agrestis virginianus Klein, l. c., p. 57. Seba, Vol. I., tab. 49, fig. 4. Virginian rat Pennant. Art. Zool., Vol. I., p. 32.

In the year 1810, a ship arrived at New York, from Tampico, which was overrun with rats of this species; a number of them were given to Mr. J. J. Audubon, who made a drawing of the animal and kindly gave me one, from which the above description was made; it is not as full and perfect as it might be, as I had no thought at the time of ever publishing it. The cranium differed in many respects from that of the M. decumanus, to which it appeared evidently allied, although the tail was so different. I shall close these observations with a few remarks on some other Rodentia.

Neotoma floridanum. Is by no means confined to the southern states, three individuals having been taken by Mr. Bell, of New York, near Nyack, on the western bank of the Hudson river, about twenty miles above the city. One of these was considerably larger than any I had ever seen, the head and body measured 11 inches, the tail 7.5.

This animal was first described by Mr. Ord, in the Bulletin of the Société Philomathique de Paris, in the year 1818, under the name of Mus floridanus, and afterwards in the Journal of the Academy of Natural Sciences, of this city, as Neotoma floridana. Harlan arranged it under the genus Arvicola, from which it differs very much in its dentition, as well as in other respects. It is the American rat of Pennant, Arct. Zool., vol. i., p. 130, where he confounds it with a Siberian animal described by Pallas.

Sigmodon hispidus. This animal is subject to considerable variation in the middle molar of both jaws, which has usually but one external and one internal enamel fold on each side, sometimes, however, there are two external folds, the additional one being anterior and smaller.

We are indebted to Mr. Ord for the first published notice of this rat, which appeared in the Journ. A. N. S., vol. iv. p. 352. It is described by Harlan in his Fauna as Arvicola hortensis, and afterwards in Silliman's Journal, vol. x. p. 285, under a different name, Arvicola ferrugineus. When Mr. Ord first brought this animal from Florida, he deposited his specimen in the Philadelphia Museum, in care of Mr. Peale, with a particular injunction against its getting into the hands of any one else. Dr. Harlan, who had free admission to this institution at all times, went there when he knew no one would be present, took the specimen away, and afterwards described it under the very inappropriate name of Arvicola hortensis. The consequence of this, to say the least of it, unfair conduct, was a positive banishment from the Museum for the future. Somewhat of a similar manœuvre caused him, sometime after, to be banished by the police from the city of Paris.

In the plates to the voyage of the French ship Venus there is figured a rat, which is called Neotoma Floridana, which probably belongs to this genus, and may be considered as a new species. The teeth have no resemblance to those of a Neotoma, which, like those of Arvicola, are formed of triangles. Not being able to refer to the text of this work, it is impossible to say of what country it is a native. It may have been found on the western coast of our continent, in California or Oregon.

The name by which the Sigmodon is known in Georgia is the Small Wood Rat, the Neotoma being called simply Wood Rat. They both keep at a distance from houses, concealed in the woods or hedge rows.

I conclude this rambling part of my paper by stating that, of the two Jaculi found in this country, the Labradore Rat of Pennant, Arct. Zool., vol. i. p. 132, since called Dipus, and Meriones, but now Jaculus, has very large ears, and is the same as the Gerbillus leonurus of Rafinesque. The Jaculus Canadensis has very small ears, and may thus be easily distinguished; they are both called Deer Mouse by the inhabitants of Canada.

The Committee on Major Le Conte's paper on Crotalus durissus and C. adamanteus, reported in favor of publication.

Observations on the so-called Crotalus durissus and C. adamanteus of modern authors.

By John Le Conte.

Cuvier, in his "Règne Animal," in a note on the genus Crotalus, observes, that the Linnean specific names of *horridus* and *durissus* have been in different ways changed between these two species. He was perfectly correct in this; and any one consulting the authors who have written on reptiles, will, in my opinion, be at no loss to determine what the illustrious Swede meant by these two specific names. In the Southern States we have but two species of Crotalus, as the genus is now restricted. They are familiarly known as the Pine Barren and the Oak Ridge rattlesnakes. Until it is possible to determine how either of these was named by Linnæus, and I cannot doubt that he had seen them both, I hope I may be pardoned if I use these popular names to distinguish them from each other. The first has, by English authors of the last century and by Cuvier, been considered the *horridus*, and the other by Shaw and Pennant, as the *durissus*; in the last case manifestly improperly, as will appear hereafter. In order, however, to elucidate this matter, I will commence with the descriptions given by Linnæus in the twelfth edition of his Systema Naturæ, the publication of which he superintended himself in the year 1766, and by Gmelin in his edition of the year 1798.

Crotalus horridus. Scutis 167, scutellis 23.

Mus. Ad. Frid., p. 39. Brad. Natur., tab. ix. fig. 1. Seba, Mus., vol. ii. tab. xcv. fig. 1.

This we may say is no description at all. But referring to the Museum regis Adolphi Friderici, we find the following:

Crotalus horridus.—Caput ad latera postice gibbum. Frons tecta squammis obtusissimis, quarum elevatus margo. Palpebræ superiores planæ, magnæ. He refers to Catesby for an account of its habits, who has described and figured a serpent with transverse bands on the back; and also to a figure in Seba's Museum, vol ii. tab. xcv., which represents one with rhombic spots. This shows how incorrectly references to figures can be made: "Quando que bonus dormitat Homerus."

Gmelin, in his edition, adds to Linnæus—Bodaert, Nov. Act. Acad. Cæsar., vol. vii. p. 16—Crotalus maculis trigonis fuscis. Caudisona terrifica Laurenti, p. 93. Michael. Gott. Mag. iv. 1, p. 90.

This only tends to make the confusion greater. The animal which Bodaert described could not be one with diamond shaped spots on the back; there is no difficulty in distinguishing a triangle from a quadrilateral figure, it therefore could not have been a species with rhombic spots. In all the individuals of the species with transverse fasciæ, which I have ever examined, these bands were more or less broken up, especially in front, in which the marks formed more or less perfect chevrons, and might easily be called triangles.

The Caudisona terrifica of Laurenti is our North American species with rhomboidal spots, and is thus described by the illustrious Italian: "Corpore carinis squammarum exasperato (mari) cinereo-flavo (feminæ) spadiceo, maculis dorsi rhomboidalibus, magnis, ex nigro fuscis, albo limbo cinctis, apicibus subrectiguis, per summum dorsi caudamque concatenatis. *Hab.* In America infra gradum, elev. 45.

The other species *durissus* is thus described by Linnæus:

Crotalus durissus. Scuta 172, Scutellis 23.

Amœnitat. Acad., i. p. 500. Seba Mus., ii. tab. xcv. fig. 2. Gronov. Mus., ii. p. 70.

Albo flavoque varius, maculis rhombeis nigris *disco* albis. Gmelin adds to these references, Bodaert, l. c. No. 2, Crotalus albus maculis rhombeis. Laurenti, p. 93, Caudisona durissus. Weigel, Act. Soc. Hal., i. p. 7. Catesby, Carolina, ii. tab. xli., who figures a species with transverse bands, and not with rhomboidal marks. Vosmaer Monog. Crotalus fasciis collique duabus nigris. Now, from all this we may collect that there are three species described, very distinct from each other, but strongly mixed together; one with rhombic spots, the discs of which are white; one with rhombic spots, the limb or margins of which are white; and one with triangular spots. I proceed now to show what the three species are, and shall commence with the first, of which we have a fair specimen in our collection, which is named C. horridus, because it agrees with Seba's figure as misquoted in the description of that species, but which agrees so well with the description of another, that one would think it never could have been mistaken.

Crotalus durissus, Linn.

Fusco et flavo varius maculis per dorsum magnis rhombeis nigris, disco flavescentibus, non-concatenatis. Capite parte priore fascia inter oculos transversa, summo et cervice lineis duabus longitudinalibus alteraque laterali nigris, spatiis intermediis flavescentibus. Scuta abdominalia 167, subcaudalia 21, primo bifido, scutellorumque ad basin crepitaculi paria tria.

Hab. In America meridionali. Crotalus durissus Lin. Laurenti, p. 93. Id. Cuvier Regne animal ii., p. 67. Id. Lacépède, ii. p. 423. Shaw, vol. iii. p. [illegible]. C. horridus Daudin, vol. v. p. 311. Id. Latreille, vol. iii. p. 186.

A very good figure of this species is found in Vosmaer, which has been copied by Shaw.

Varied with dark brown and yellowish, with a row of large black rhombic spots, the discs of which are yellowish, down the back, and which are not joined together or concatenated; these rhombs towards the tail gradually become less distinct, until at last they vanish, so that the hinder part of the body may be said to be only varied with black and yellowish. The tail is perfectly black on ll sides; the body beneath is yellowish, varied and blotched with dusky more istinctly and closely on the hinder part and on the sides. Head very large, with black stripe from the eye to the corner of the mouth, and a transverse bar of he same color across the head just in front of the eyes, and joining the former tripe at the eye. Top of the head and neck with two longitudinal, black stripes, nd another likewise on the side of the neck, the intervening spaces being yelowish. Rostral plate triangular, the apex sharp, pale brown or yellowish; there re two roundish yellow plates on each side of this, and two likewise between hem on the top of the head, which are brownish and triangular, the apices pointng forward; behind them there is a narrow transverse bar of yellowish, and nother of black, which is succeeded by a third one of yellow formed of four roundish scales, those near the eyes very large, the other rather smaller; the head is otherwise covered with tolerably large scales.

Length 4 feet 4 inches, with three rattles. Circumference of the body 8 inches.

In the description of Crotalus durissus, both Linnæus and Laurenti agree that the rhombs on the back have their discs white; and the former, in the Amœnitates Academicæ, says, that the area between the eyes is blackish, and has a broad transverse white line. We ought not to hesitate one moment in declaring hat this species is not the *horridus*. The ground color of all the specimens which have been examined in Europe appears to have faded, therefore, the parts of the descriptions relating to this are of little value. It may be observed of reptiles in general, that parts of the body which when living were black, frequently change to grey or even white, when kept for any length of time in alcohol. The specimen from which the preceding description was taken, in parts which were originally black or dark brown, had become cinereous by the peeling off of the epidermis, and if this process had been carried on for the whole length of the body, scarcely any of the distinguishing characteristics would have been pparent.

Having thus determined what the Crotalus durissus of Linnæus is, I proceed o describe the two species which we have in the Atlantic States, calling them by their vulgar names, and leaving it to each naturalist to determine by what names they ought to be distinguished.

THE PINE BARREN RATTLE SNAKE.

Pallide rufescente fuscus ad nigrum tendens. Dorso fasciis transversis, irregularibus, serratis, nigris. Cauda nigra. Corpore subtus albescens maculis minimis nigrascentibus.

Hab. Per totum Americam borealem, provinciis atlanticis. Crot. horridus Cuvier, Regne Animale. Id. Shaw, vol. iii. p. 317. Id. Pennant, Arct. Zool. Suppl., p. 87. Id. Bodaert, Nov. Act. Acad. Cæs., vol. vii p. 16. C. atricaudatus Daudin, vol. v. p. 316. Id. Latreille, vol. iii. p. 209. C. durissus Daudin, l. c. p. 301. Id. Latreille, vol. iv. p. 322. Id. Holbrook, Herp. iii. p. 9. Id. Dekay, Zool. N. Y. vol. ii. p. 55 and 56. C. boiquira and horridus, Palisot de Beauvois, Trans. Am. Phil. Society, vol. iv. p. 368. Catesby, ii. tab. 41. A very excellent figure, shewing the animal in its highest state of perfection. Above pale reddish brown, somewhat duskyish, frequently with a yellowish or reddish vertebral line. Body with numerous transverse, irregular, serrate fasciæ of dusky or black, more or less interruptedly bordered with whitish. These fasciæ gradually diminish in distinctness towards the tail; as the color becomes darker or more dusky the bands become entire. Tail black on all sides, barred with paler. Body beneath whitish, thinly speckled with dusky. Head with a broad, dark brown line extending from the eye along the cheek to the corner of the mouth; often, however, it is almost entirely black; eyes red; neck very slender, most frequently with two short longitudinal black lines on the top. Rostral plate triangular; supernasals, one on each side, externally rounded; orbital and antocular plates large. Scales of the head small, resembling coarse shagreen. Body beneath whitish, thinly speckled with dusky. Abdominal scuta 170 to 178; subcaudal 18 to 25, with two pair of scales at the base of the rattle. The male is generally to be distinguished by a black spot behind the occiput, The transverse bars are frequently broken up, particularly in front, and the larger portions form perfect chevrons.

The young are yellowish, with irregular dusky marks on the back and sides, the larger ones being transverse; none of them, however, are serrate, as in the older animals; instead of a rattle there is a small button at the end of the tail.

Grows to the length of 8 feet; one of this size had 9 rattles, whilst another of 6 feet had 14. Specimens of the rattles of these snakes have been shown consisting of thirty joints; these are fictitious, and made by taking the separate "grelots" from different rattles and joining them together, for they may be fitted in such a manner that the deception cannot be perceived. Had I not seen this artificial junction made in my presence, I should have considered these long "crepitacula" as really natural.

THE OAK RIDGE RATTLE SNAKE.

Supra niger vel fuscus, serie dorsali regulari rhomboidum magnorum, concatenatorum, limbo albo, disco fusco, variegato; subtus flavescens, nigro variegatus et maculatus.

Hab. In provinciis australioribus Caudisona terrifica Laurenti, p. 93. Crotalus rhombifer Daudin, vol. v. p. 325. Id. Latreille, vol. iii. p. 197. C. adamanteus, Palisot de Beauvois, Trans. Am. Phil. Soc., vol. iv. p. 368. Id. Holbrook, vol. iii. p. 17. C. durissus Pennant, Arct. Zool. Suppl., p. 90. Id. Shaw, vol. iii. p. 333, who confounds it with the C. durissus; of both species furnishing very good figures. Lacèpéde, vol. ii. p. 396.

Above black or brown, with a row of large black or dusky rhomboidal spots on the back, which on the limb or margin are whitish or yellowish, and on the disc mixed with brown; these rhomboids are connected together, so that the animal appears to have two yellowish lines running down the back and mutually crossing each other from right to left at certain intervals; they gradually become less distinct towards the tail until they vanish, some of the posterior ones changing into transverse bands. The sides of those which are brown are marked with two rows of dusky spots; those which are black, of course, must want these spots. Tail with alternate bars of black and yellowish, or black and dusky. Body beneath yellowish, mixed and spotted with dusky. Head very large, spotted with paler, with two yellowish and three black or dusky stripes on each side, sometimes entirely black, the top covered with small scales resembling coarse shagreen. Rostral plate pentangular, wider and rounded at the base: supernasal plates two, small, a larger quadrangular space between the rostral and nasal: behind the rostral is a large plate on each side, immediately behind these are two others; the palpebræ are large, transversely striate; antocular plate large. Abdominal scuta 170 to 178; subcaudal 23 to 32, and 4 pair of scales at the base of the rattle.

Length 6 feet with 6 rattles.

I come now to the conclusions which are to be drawn from the preceding remarks: and first, the so-called *horridus*, the Boiquira and Cascarella of many authors, is the *durissus* of Linnæus. I place little reliance on references to engraved figures, as in many instances they are made in a very careless manner. Thus, we find Linnæus quoting a figure in Seba's Museum, which does not tally with descriptions of other authors quoted by himself; and Laurenti, an author in other respects very cautious and accurate, refers to a figure in Catesby, of a serpent with transverse bars, as representing one with rhombic spots. We are driven, it appears to me, into this dilemma: either the name of *horridus* must be stricken out from acknowledged species, or given to that one which is called by so many *durissus*, or, we must call this last one *horridus*, and thus have the species with two distinct names. For, as I have observed elsewhere, there can be no doubt of the animal, so well described by both Linnæus and Laurenti, being *durissus*. Secondly, as for the other species, which Palisot de Beauvois called *adamanteus*, and which others have named *rhombifer*, &c., whether it was known to Linnæus cannot now be proven, although, for my own part, I have no doubt but that he confounded it with the South American species, or it may be the *dryinas* which had lost its color. See Amœnitatis Academicæ, vol. i. p. 501, where he says that many names and synonyms which have been given to C. *dryinas* will also be common to C. durissus. The name of *adamanteus* must be changed to that of *terrificus*, as this last has the priority in date by thirty years. Others may think otherwise but

> Rumpat et serpens iter institutum,
> Si per obliquum similis sagitta
> Terruit mannos.

A few words concerning the habits of these serpents. Their vaunted generosity in giving warning to those who approach them, is a ridiculous fable; in most cases they inflict their deadly wounds without sounding an alarm, and show themselves extremely vicious by making unprovoked attacks upon every thing that comes within their reach. With regard to their venom and the many antidotes which at different times have been pronounced infallible, I can safely declare that, in no instance where the fang has entered the body so as to penetrate one of the larger veins, has a recovery been known. Inevitable death is the consequence. They tell us that they cannot hurt deer or swine; the reason is obvious; the first has long legs with scarcely any muscular substance on them, and therefore no veins of any size; and in the case of the other, no snake's fang is long enough to pass through the skin and fat so as to meet a part obnoxious to the poison. I should have observed before, that a complete solution of the blood in the whole body is the immediate cause of death from the bite of a Crotalus.

Palisot de Beauvois, in the Transactions of the American Philosophical Society, has said, that these snakes have no fetid odor emanating from them; that in the presence of any number of them, no disagreeable smell is perceptible. On the contrary, I know from repeated experience, that their vicinity may generally be discovered by the fetor which they exhale, and that it is so strong when proceeding from one that is enraged, as to occasion a considerable degree of sickness of some hours duration. Most snakes emit a smell by no means pleasant; this has always been known, and is stronger and more deleterious in those which are venomous than in those which are not. Martial, in one of his epigrams, says:

> Quod vulpes fuga, viperæ cubile
> Mallem quam quod oles olere Bassa.

There is another fact connected with these snakes as well as many others, which has been the subject of much discussion. I allude to what has been called the power of charming smaller animals upon which they prey. This has been attributed to some secret fascinating power in the serpent. It has also been attributed to the fright experienced at the sight of so formidable an enemy. If it be said that the bird or the squirrel, in this predicament, fixedly gazed upon by the terrible eyes of the serpent, could easily make its escape, the answer is, that the unaccountable behaviour of the poor victim arises from its anxiety for its young. The only instances in which I have seen snakes endeavoring to get possession of birds, was at a time of the year when they had no young to take care of. Squirrels generally have their nests on such lofty trees in our forests, that it is very doubtful whether a snake's range of vision could reach so far, therefore, it must be something more than fear which can bring a squirrel down from his secure habitation, one hundred or one hundred and fifty feet from the ground, to become the easy and unresisting prey of a serpent. If he should be surprised on the ground, what prevents him from ascending the next tree and soon losing himself among the foliage of those which are in the neighborhood. I do not attempt to explain the thing, but call the attention of the reader of these observations to the behaviour of cats to birds, and of cats and dogs to men when they wish to obtain any thing from them. If there is any fascination in the steadfast gaze of the eyes, they attempt to employ it upon us.

It may not be out of the way at the end of these lines, to correct an error which is now current among naturalists, which is, that the fangs in the genus Elaps are always and permanently perpendicular, and not laid back as in other venomous serpents. This is not the case. Upon examining fresh killed specimens, I find them placed exactly as they are in a rattlesnake, and erected in the same way when they wish to bite, that is by throwing back a part of the upper prominent, the head larger, and the fore feet not being so different in length from the hind as to cause its usual mode of progression to be by leaps. The proportion between the fore and hind feet in this species being as 1 to 1·75, whereas in H. leucopus it is as 1 to 2.

3. Hesp. leucopus. Supra læte badius interdum prope aurantiacus, subtus niveus, coloribus a se abrupte disjunctis. Capite subobtuso, auribus magnis, erectis, ovalibus, subnudis, margine angustissimo sub-albido.

Hab. In provinciis borealibus. Hesp. leucopus Wagner, Schreber, Suppl. vol. iii. p. 528. Musculus leucopus Rafinesque, Am. Month. Mag., vol. iii. p. 444. Mus leucopus Richardson, l. c. p. 142. Id. Dekay, Zoolog. New York, vol. i. p. 82. Id. Schinz., vol. ii. p. 176. Mus agrarius, var. 2, Turton's Linnæus, vol. i. p. Id. Godman's Fauna, vol. ii. p. 88. Mus sylvaticus Harlan, Fauna, p. 149. (Description translated from Demarest and not applicable.) Arvicola Emmonsii Emmons, Mass. Report. p. 61. Cricetus myoides Gapper, Zool. Jour., vol. v. p. 204. Cricetomys myoides Schinz., l. c. p. 204. Field Mouse, Pennant, Arc. Zool., vol. i. p. 131. Vulg. Jumping Mouse.

Hair dark plumbeous, above tipt with tawny or dark orange, on the top of the head and back with brown and tawny, beneath, for at least two-thirds of the length of the hair with snowy white; the tawny color of the sides very bright, and abruptly separated from the snowy color of the belly, the line of separation very distinct and well defined, and curved upward on the sides both before and behind the forelegs. Head moderately blunt; eyes prominent, black and very lively; nose and lips white; cheeks bright tawny; ears large, erect, oval, blunt, nearly naked, being furnished with short, closely appressed hairs, not in very great quantity, and narrowly margined with whitish. Fore legs generally white on all sides; hind legs outwardly tawny, inwardly white; feet pale flesh color, with closely appressed white hairs projecting beyond the nails. Tail above brownish dusky, beneath cinereous brown. In winter the fur frequently becomes darker colored, being over almost all the upper parts dark cinereous mixed with tawny.

Length in. 3·9; head 1·2; ears height ·55, width ·35; fore leg ·9; hind leg ·15; tail 2·9; tibia and tarsus 1·8.

Specimens are brought from California and from Oregon that are above much darker colored; the plumbeous color of the lower portion of the hair appearing more distinctly among the tawny tips, which are thus rendered but here and there visible; the upper color is separated from that of the belly as distinctly as in others; the outer side of the fore legs, however, is not white, but of the color of the back. In other specimens, the upper parts are more uniformly brownish tawny, and the belly not so white; the fore legs also are of a dull white. In none of them are the white parts so beautifully snowy. All of them that I have seen had been preserved in alcohol, and were, therefore, more or less unfit for description. There may be really distinct species among them.

This animal burrows in the ground, forming long galleries, and proves very destructive in gardens. It becomes, in some places, impossible to cultivate certain species of bulbous roots, as hyacinths, tulips, &c., without some contrivance by which they may be protected from their depredations. The best method which I have seen used was, surrounding each root with a flower pot, the bottom of which was knocked out. The robber does not penetrate very deep into the earth, he is thus quickly stopped in his progress, and forced to look elsewhere for food. Their usual mode of progression when on the surface is by leaping, hence their name of Jumping Mouse. The name of Deer Mouse is given in Canada to the two species of Jaculus; it is only used in that country, as the Jaculi are so seldom seen in the United States as to be only known to naturalists. In the winter they enter houses, particularly cellars, and support themselves in the same manner as the Mus musculus. In green houses they are extremely destructive to cacti and other succulent plants. I have never known them to form their nests in trees, or to occupy deserted birds' nests; it is another species of this genus which has this habit. This species I have found it impossible to obtain, although formerly quite numerous in the vicinity of New York. M. de Selys Longchamps, in his Micro-mammalogia, pp. 66 and 67, makes some observations on this mouse, and proves that it cannot be the same as the Mus sylvaticus of Europe; he calls it Mus noveboracensis. I cannot find whence he got this name, but should rejoice much to find that it had been proposed by some naturalist before Rafinesque, that we might get rid of the Greek name which is now indissolubly attached to it.

4. HESP. CAMPESTRIS. Supra fuscus, subtus cinereo-fuscus. Capite magno, auribus magnis, ovalibus, obtusis, pilis brevibus sparse vestitis.

Hab. In Nova Cæsarea.

Hair plumbeous black, above tipt with brown, beneath with cinereous brown, darker about the mouth. Head large; ears large, oval, blunt, thinly covered both within and without, with very short, closely appressed hair. Legs and feet brown. Tail well clothed with tolerably long hair.

Length in. 3·4; head 1·2; ears 55·; width ·4; fore leg ·45; hind leg 1·6; tail 2·7.

This species was found in the collection of the Academy, and labelled Mus campestris, from New Jersey. The specimens were preserved in alcohol, and therefore scarcely fit to be described; there was, however, enough to show that they were different from any hitherto described animal.

5. HESP. SONORIENSIS. Supra saturate cinereus fuscescente-cano leviter intermixtus, subtus albescens. Capite elongato, auribus magnis. Cauda modica.

Hab. In provincia Sonoræ.

Hair above dark cinereous or slate color, slightly mixed with brownish grey, more thickly on the head, nose, and behind the ears, and with grey on the sides; beneath whitish, except on the throat, which is mixed slate-color and whitish. Head elongated, pointed; ears large, oval, hairy both within and without, and with a distinct narrow grey margin. Feet covered with short, whitish brown hair. Tail moderate, above dark brown, beneath paler.

Length in. 3·3; head 1·2; ears ·4; fore leg 1·; hind leg 1·8; tail 1·9.

Resembles in some degree the H. leucopus. Collected by the Boundary Commission, under Major Graham.

These are all the species of this genus of which I have specimens at present. Messrs. Audubon and Bachman describe in addition, H. humilis, H. aureolus, H. caroliniensis and H. michiganensis under the genus Mus. With all of these, except the last, I was well acquainted forty years ago.

I cannot omit saying something here of an animal described by Dr. Dekay in the Zoology of the State of New York, vol. i. p. 31, under the name of Mus Americanus. This is certainly a Hesperomys, or a species of one of the allied genera, and not a Mus rattus, as Dr. Bachman supposes. It is some years ago since it was found in the city of New York, and handed to me for examination by Mr. John G. Bell. I took the following notes of it at the time, and had it passed to Dr. Dekay, who was then engaged in writing the Zoology of the State.

The animal was above and beneath of a uniform dark plumbeous black inclining to dusky; head rather blunt; eyes prominent; ears oval, blunt, externally naked, internally sparsely hairy. Feet small, covered with short shining hair; toes white. Tail short; terete, annulosely scaly.

Length of head and body 9·3; tail 5·6; head 2·4; ears ·75; width ·45.

REITHRODON LECONTEI. Supra rufo, fusco et nigrante mixtus, subtus albidus; naribus carunculatis, labris tumidis. Auribus magnis.

Hab. In Georgia. Mus Le Contii Bachman, Jour. Acad. Nat. Sc., vol. viii. p. 307.

Hair plumbeous, above tipt with rufous, dark brown and dusky, the latter color prevailing more on the back. Forehead much arched; eyes large; lips tumid; nostrils each furnished beneath with a small caruncle pointing downwards; ears oval, large, hairy both within and without. Feet very pale flesh color, covered with short cinereous brown hairs. Tail long, nearly naked, above brown, beneath paler.

Length in. 2·5; head ·8; ears ·2; fore leg ·5; hind leg ·8; tail 2 inches.

Very much resembles the common mouse. Burrows in the earth and comes out at night to eat. Its food appears to consist chiefly of green vegetables.

In the preliminary remarks to this memoir, I alluded to a species of Mus inhabiting the Southern States, which might be considered as native and not imported, which was mentioned in Audubon and Bachman's Quadrupeds as a variety of Mus rattus. This animal was known many years ago to Seba, Klein and Brisson, and figured or described by them. The following description of it made many years ago, although some what imperfect, may help to point it out.

Mus Americanus. Hair dark cinereous, above tipped with reddish brown, and dusky with many long scattering hairs of the latter color, beneath with white, having a tinge of yellow particularly towards the sides. Ears rather large, oval, blunt, naked. Feet whitish, covered with short hairs. Thumb tubercle furnished with a short blunt nail. Tail terete, long, annulosely scaly, furnished with short hair.

Hab. In Georgia and Carolina. Mus Americanus Turton's Linnæus, Vol. I. p. 50. Rattus Americanus Brisson, Regne Animale, p. 172. Mus Americanus Klein, Quad. p. 53. Seba, Vol. II. tab. 29, fig. 2.

This rat was formerly very common in the midland counties of Georgia. I, however, know nothing of its habits. The following measurements were taken from many different specimens. Length of head and body 7.74; tail 7.8; head 2.05; ears .9.

Mus Virginianus. Color entirely white. Ears, feet and tail flesh color. Eyes brown. Ears moderate, blunt, naked. Feet thinly covered with short hair; thumb-tubercle with a short blunt nail. Tail thick, rather blunt, quadrangular, the upper side convex, the others plane, annulosely scaley, with short hairs proceeding from the base of the rings.

Hab. In Texas.

Length h. and b. 7.3; tail 6.2; diameter at root .3, at point .2.

Mus Virginianus Turton, l. c., p. 82. Mus albus virginianus Brisson, l. c., p. 173. M. agrestis virginianus Klein, l. c., p. 57. Seba, Vol. I., tab. 49, fig. 4. Virginian rat Pennant. Art. Zool., Vol. I., p. 32.

In the year 1810, a ship arrived at New York, from Tampico, which was overrun with rats of this species; a number of them were given to Mr. J. J. Audubon, who made a drawing of the animal and kindly gave me one, from which the above description was made; it is not as full and perfect as it might be, as I had no thought at the time of ever publishing it. The cranium differed in many respects from that of the M. decumanus, to which it appeared evidently allied, although the tail was so different. I shall close these observations with a few remarks on some other Rodentia.

Neotoma floridanum. Is by no means confined to the southern states, three individuals having been taken by Mr. Bell, of New York, near Nyack, on the western bank of the Hudson river, about twenty miles above the city. One of these was considerably larger than any I had ever seen, the head and body measured 11 inches, the tail 7.5.

This animal was first described by Mr. Ord, in the Bulletin of the Société Philomathique de Paris, in the year 1818, under the name of Mus floridanus, and afterwards in the Journal of the Academy of Natural Sciences, of this city, as Neotoma floridana. Harlan arranged it under the genus Arvicola, from which it differs very much in its dentition, as well as in other respects. It is the American rat of Pennant, Arct. Zool., vol. i., p. 130, where he confounds it with a Siberian animal described by Pallas.

Sigmodon hispidus. This animal is subject to considerable variation in the middle molar of both jaws, which has usually but one external and one internal enamel fold on each side, sometimes, however, there are two external folds, the additional one being anterior and smaller.

We are indebted to Mr. Ord for the first published notice of this rat, which appeared in the Journ. A. N. S., vol. iv. p. 352. It is described by Harlan in his Fauna as Arvicola hortensis, and afterwards in Silliman's Journal, vol. x. p. 285, under a different name, Arvicola ferrugineus. When Mr. Ord first brought this animal from Florida, he deposited his specimen in the Philadelphia Museum, in care of Mr. Peale, with a particular injunction against its getting into the hands of any one else. Dr. Harlan, who had free admission to this institution at all times, went there when he knew no one would be present, took the specimen away, and afterwards described it under the very inappropriate name of Arvicola hortensis. The consequence of this, to say the least of it, unfair conduct, was a positive banishment from the Museum for the future. Somewhat of a similar manœuvre caused him, sometime after, to be banished by the police from the city of Paris.

In the plates to the voyage of the French ship Venus there is figured a rat, which is called Neotoma Floridana, which probably belongs to this genus, and may be considered as a new species. The teeth have no resemblance to those of a Neotoma, which, like those of Arvicola, are formed of triangles. Not being able to refer to the text of this work, it is impossible to say of what country it is a native. It may have been found on the western coast of our continent, in California or Oregon.

The name by which the Sigmodon is known in Georgia is the Small Wood Rat, the Neotoma being called simply Wood Rat. They both keep at a distance from houses, concealed in the woods or hedge rows.

I conclude this rambling part of my paper by stating that, of the two Jaculi found in this country, the Labradore Rat of Pennant, Arct. Zool., vol. i. p. 132, since called Dipus, and Meriones, but now Jaculus, has very large ears, and is the same as the Gerbillus leonurus of Rafinesque. The Jaculus Canadensis has very small ears, and may thus be easily distinguished; they are both called Deer Mouse by the inhabitants of Canada.

The Committee on Major Le Conte's paper on Crotalus durissus and C. adamanteus, reported in favor of publication.

Observations on the so-called Crotalus durissus and C. adamanteus of modern authors.

By John Le Conte.

Cuvier, in his "Règne Animal," in a note on the genus Crotalus, observes, that the Linnean specific names of *horridus* and *durissus* have been in different ways changed between these two species. He was perfectly correct in this; and any one consulting the authors who have written on reptiles, will, in my opinion, be at nò loss to determine what the illustrious Swede meant by these two specific names. In the Southern States we have but two species of Crotalus, as the genus is now restricted. They are familiarly known as the Pine Barren and the Oak Ridge rattlesnakes. Until it is possible to determine how either of these was named by Linnæus, and I cannot doubt that he had seen them both, I hope I may be pardoned if I use these popular names to distinguish them from each other. The first has, by English authors of the last century and by Cuvier, been considered the *horridus*, and the other by Shaw and Pennant, as the *durissus*; in the last case manifestly improperly, as will appear hereafter. In order, however, to elucidate this matter, I will commence with the descriptions given by Linnæus in the twelfth edition of his Systema Naturæ, the publication of which he superintended himself in the year 1766, and by Gmelin in his edition of the year 1798.

CROTALUS HORRIDUS. Scutis 167, scutellis 23.

Mus. Ad. Frid., p. 39. Brad. Natur., tab. ix. fig. 1. Seba, Mus., vol. ii. tab. xcv. fig. 1.

This we may say is no description at all. But referring to the Museum regis Adolphi Friderici, we find the following:

Crotalus horridus.—Caput ad latera postice gibbum. Frons tecta squammis obtusissimis, quarum elevatus margo. Palpebræ superiores planæ, magnæ. He refers to Catesby for an account of its habits, who has described and figured a serpent with transverse bands on the back; and also to a figure in Seba's Museum, vol ii. tab. xcv., which represents one with rhombic spots. This shows how incorrectly references to figures can be made: "Quando que bonus dormitat Homerus."

Gmelin, in his edition, adds to Linnæus—Bodaert, Nov. Act. Acad. Cæsar., vol. vii. p. 16—Crotalus maculis trigonis fuscis. Caudisona terrifica Laurenti, p. 93. Michael. Gott. Mag. iv. 1, p. 90.

This only tends to make the confusion greater. The animal which Bodaert described could not be one with diamond shaped spots on the back; there is no difficulty in distinguishing a triangle from a quadrilateral figure, it therefore could not have been a species with rhombic spots. In all the individuals of the species with transverse fasciæ, which I have ever examined, these bands were more or less broken up, especially in front, in which the marks formed more or less perfect chevrons, and might easily be called triangles.

The Caudisona terrifica of Laurenti is our North American species with rhomboidal spots, and is thus described by the illustrious Italian: "Corpore carinis squammarum exasperato (mari) cinereo-flavo (feminæ) spadiceo, maculis dorsi rhomboidalibus, magnis, ex nigro fuscis, albo limbo cinctis, apicibus subcontiguis, per summum dorsi caudamque concatenatis. *Hab.* In America infra gradum, elev. 45.

The other species *durissus* is thus described by Linnæus:

Crotalus durissus. Scuta 172, Scutellis 23.

Amœnitat. Acad., i. p. 500. Seba Mus., ii. tab. xcv. fig. 2. Gronov. Mus., ii. p. 70.

Albo flavoque varius, maculis rhombeis nigris *disco* albis. Gmelin adds to these references, Bodaert, l. c. No. 2, Crotalus albus maculis rhombeis. Laurenti, p. 93, Caudisona durissus. Weigel, Act. Soc. Hal., i. p. 7. Catesby, Carolina, ii. tab. xli., who figures a species with transverse bands, and not with rhomboidal marks. Vosmaer Monog. Crotalus fasciis collique duabus nigris. Now, from all this we may collect that there are three species described, very distinct from each other, but strongly mixed together; one with rhombic spots, the discs of which are white; one with rhombic spots, the limb or margins of which are white; and one with triangular spots. I proceed now to show what the three species are, and shall commence with the first, of which we have a fair specimen in our collection, which is named C. horridus, because it agrees with Seba's figure as misquoted in the description of that species, but which agrees so well with the description of another, that one would think it never could have been mistaken.

Crotalus durissus, Linn.

Fusco et flavo varius maculis per dorsum magnis rhombeis nigris, disco flavescentibus, non-concatenatis. Capite parte priore fascia-inter oculos transversa, summo et cervice lineis duabus longitudinalibus alteraque laterali nigris, spatiis intermediis flavescentibus. Scuta abdominalia 167, subcaudalia 21, primo bifido, scutellorumque ad basin crepitaculi paria tria.

Hab. In America meridionali. Crotalus durissus Lin. Laurenti, p. 93. Id. Cuvier Regne animal ii., p. 67. Id. Lacépède, ii. p. 423. Shaw, vol. iii. p. 333. C. horridus Daudin, vol. v. p. 311. Id. Latreille, vol. iii. p. 186.

A very good figure of this species is found in Vosmaer, which has been copied by Shaw.

Varied with dark brown and yellowish, with a row of large black rhombic spots, the discs of which are yellowish, down the back, and which are not joined together or concatenated; these rhombs towards the tail gradually become less distinct, until at last they vanish, so that the hinder part of the body may be said to be only varied with black and yellowish. The tail is perfectly black on all sides; the body beneath is yellowish, varied and blotched with dusky more distinctly and closely on the hinder part and on the sides. Head very large, with a black stripe from the eye to the corner of the mouth, and a transverse bar of the same color across the head just in front of the eyes, and joining the former stripe at the eye. Top of the head and neck with two longitudinal, black stripes, and another likewise on the side of the neck, the intervening spaces being yellowish. Rostral plate triangular, the apex sharp, pale brown or yellowish; there are two roundish yellow plates on each side of this, and two likewise between them on the top of the head, which are brownish and triangular, the apices pointing forward; behind them there is a narrow transverse bar of yellowish, and another of black, which is succeeded by a third one of yellow formed of four roundish scales, those near the eyes very large, the other rather smaller; the head is otherwise covered with tolerably large scales.

Length 4 feet 4 inches, with three rattles. Circumference of the body 8 inches.

In the description of Crotalus durissus, both Linnæus and Laurenti agree that the rhombs on the back have their discs white; and the former, in the Amœnitates Academicæ, says, that the area between the eyes is blackish, and has a broad transverse white line. We ought not to hesitate one moment in declaring that this species is not the *horridus*. The ground color of all the specimens which have been examined in Europe appears to have faded, therefore, the parts of the descriptions relating to this are of little value. It may be observed of reptiles in general, that parts of the body which when living were black, frequently change to grey or even white, when kept for any length of time in alcohol. The specimen from which the preceding description was taken, in parts which were originally black or dark brown, had become cinereous by the peeling off of the epidermis, and if this process had been carried on for the whole length of the body, scarcely any of the distinguishing characteristics would have been apparent.

Having thus determined what the Crotalus durissus of Linnæus is, I proceed to describe the two species which we have in the Atlantic States, calling them by their vulgar names, and leaving it to each naturalist to determine by what names they ought to be distinguished.

THE PINE BARREN RATTLE-SNAKE.

Pallide rufescente fuscus ad nigrum tendens. Dorso fasciis transversis, irregularibus, serratis, nigris. Cauda nigra. Corpore subtus albescens maculis minimis nigrascentibus.

Hab. Per totum Americam borealem, provinciis atlanticis. Crot. horridus Cuvier, Regne Animale. Id. Shaw, vol. iii. p. 317. Id. Pennant, Arct. Zool. Suppl., p. 87. Id. Bodaert, Nov. Act. Acad. Cæs., vol. vii p. 16. C. atricaudatus Daudin, vol. v. p. 316. Id. Latreille, vol. iii. p. 209. C. durissus Daudin, l. c. p. 304. Id. Latreille, vol. iv. p. 322. Id. Holbrook, Herp. iii. p. 9. Id. Dekay, Zool. N. Y. vol. ii. p. 55 and 56. C. boiquira and horridus, Palisot de Beauvois, Trans. Am. Phil. Society, vol. iv. p. 368. Catesby, ii. tab. 41. A very excellent figure, shewing the animal in its highest state of perfection. Above pale reddish brown, somewhat duskyish, frequently with a yellowish or reddish vertebral line. Body with numerous transverse, irregular, serrate fasciæ of dusky or black, more or less interruptedly bordered with whitish. These fasciæ gradually diminish in distinctness towards the tail; as the color becomes darker or more dusky the bands become entire. Tail black on all sides, barred with paler. Body beneath whitish, thinly speckled with dusky. Head with a broad, dark brown line extending from the eye along the cheek to the corner of the mouth; often, however, it is almost entirely black; eyes red; neck very slender, most frequently with two short longitudinal black lines on the top. Rostral plate triangular; supernasals, one on each side, externally rounded; orbital and antocular plates large. Scales of the head small, resembling coarse shagreen. Body beneath whitish, thinly speckled with dusky. Abdominal scuta 170 to 178; subcaudal 18 to 25, with two pair of scales at the base of the rattle. The male is generally to be distinguished by a black spot behind the occiput.

The transverse bars are frequently broken up, particularly in front, and the larger portions form perfect chevrons.

The young are yellowish, with irregular dusky marks on the back and sides, the larger ones being transverse; none of them, however, are serrate, as in the older animals; instead of a rattle there is a small button at the end of the tail.

Grows to the length of 8 feet; one of this size had 9 rattles, whilst another of 6 feet had 14. Specimens of the rattles of these snakes have been shown consisting of thirty joints; these are fictitious, and made by taking the separate "grelots" from different rattles and joining them together, for they may be fitted in such a manner that the deception cannot be perceived. Had I not seen this artificial junction made in my presence, I should have considered these long "crepitacula" as really natural.

THE OAK RIDGE RATTLE SNAKE.

Supra niger vel fuscus, serie dorsali regulari rhomboidum magnorum, concatenatorum, limbo albo, disco fusco, variegato; subtus flavescens, nigro variegatus et maculatus.

Hab. In provinciis australioribus Caudisona terrifica Laurenti, p. 93. Crotalus rhombifer Daudin, vol. v. p. 325. Id. Latreille, vol. iii. p. 197. C. adamanteus, Palisot de Beauvois, Trans. Am. Phil. Soc., vol. iv. p. 368. Id. Holbrook, vol. iii. p. 17. C. durissus Pennant, Arct. Zool. Suppl., p. 90. Id. Shaw, vol. iii. p. 333, who confounds it with the C. durissus; of both species furnishing very good figures. Lacèpéde, vol. ii. p. 396.

Above black or brown, with a row of large black or dusky rhomboidal spots on the back, which on the limb or margin are whitish or yellowish, and on the disc mixed with brown; these rhomboids are connected together, so that the animal appears to have two yellowish lines running down the back and mutually crossing each other from right to left at certain intervals; they gradually become less distinct towards the tail until they vanish, some of the posterior ones changing into transverse bands. The sides of those which are brown are marked with two rows of dusky spots; those which are black, of course, must want these spots. Tail with alternate bars of black and yellowish, or black and dusky. Body beneath yellowish, mixed and spotted with dusky. Head very large, spotted with paler, with two yellowish and three black or dusky stripes on each side, sometimes entirely black, the top covered with small scales resembling coarse shagreen. Rostral plate pentangular, wider and rounded at the base; supernasal plates two, small, a larger quadrangular space between the rostral and nasal; behind the rostral is a large plate on each side, immediately behind these are two others; the palpebræ are large, transversely striate; antocular plate large. Abdominal scuta 170 to 178; subcaudal 23 to 32, and 4 pair of scales at the base of the rattle.

Length 6 feet with 6 rattles.

I come now to the conclusions which are to be drawn from the preceding remarks: and first, the so-called *horridus*, the Boiquira and Cascarella of many authors, is the *durissus* of Linnæus. I place little reliance on references to engraved figures, as in many instances they are made in a very careless manner. Thus, we find Linnæus quoting a figure in Seba's Museum, which does not tally with descriptions of other authors quoted by himself; and Laurenti, an author in other respects very cautious and accurate, refers to a figure in Catesby, of a serpent with transverse bars, as representing one with rhombic spots. We are driven, it appears to me, into this dilemma: either the name of *horridus* must be stricken out from acknowledged species, or given to that one which is called by so many *durissus*, or, we must call this last one *horridus*, and thus have the species with two distinct names. For, as I have observed elsewhere, there can be no doubt of the animal, so well described by both Linnæus and Laurenti, being *durissus*. Secondly, as for the other species, which Palisot de Beauvois called *adamanteus*, and which others have named *rhombifer*, &c., whether it was known to Linnæus cannot now be proven, although, for my own part, I have no doubt but that he confounded it with the South American species, or it may be the *dryinas* which had lost its color. See Amœnitatis Academicæ, vol. i. p. 501, where he says that many names and synonyms which have been given to *C. dryinas* will also be common to C. durissus. The name of *adamanteus* must be changed to that of *terrificus*, as this last has the priority in date by thirty years. Others may think otherwise but

> Rumpat et serpens iter institutum,
> Si per obliquum similis sagitta
> Terruit mannos.

A few words concerning the habits of these serpents. Their vaunted generosity in giving warning to those who approach them, is a ridiculous fable; in most cases they inflict their deadly wounds without sounding an alarm, and show themselves extremely vicious by making unprovoked attacks upon every thing that comes within their reach. With regard to their venom and the many antidotes which at different times have been pronounced infallible, I can safely declare that, in no instance where the fang has entered the body so as to penetrate one of the larger veins, has a recovery been known. Inevitable death is the consequence. They tell us that they cannot hurt deer or swine; the reason is obvious; the first has long legs with scarcely any muscular substance on them, and therefore no veins of any size; and in the case of the other, no snake's fang is long enough to pass through the skin and fat so as to meet a part obnoxious to the poison. I should have observed before, that a complete solution of the blood in the whole body is the immediate cause of death from the bite of a Crotalus.

Palisot de Beauvois, in the Transactions of the American Philosophical Society, has said, that these snakes have no fetid odor emanating from them; that in the presence of any number of them, no disagreeable smell is perceptible. On the contrary, I know from repeated experience, that their vicinity may generally be discovered by the fetor which they exhale, and that it is so strong when proceeding from one that is enraged, as to occasion a considerable degree of sickness of some hours duration. Most snakes emit a smell by no means pleasant; this has always been known, and is stronger and more deleterious in those which are venomous than in those which are not. Martial, in one of his epigrams, says:

> Quod vulpes fuga, viperæ cubile
> Mallem quam quod oles olere Bassa.

There is another fact connected with these snakes as well as many others, which has been the subject of much discussion. I allude to what has been called the power of charming smaller animals upon which they prey. This has been attributed to some secret fascinating power in the serpent. It has also been attributed to the fright experienced at the sight of so formidable an enemy. If it be said that the bird or the squirrel, in this predicament, fixedly gazed upon by the terrible eyes of the serpent, could easily make its escape, the answer is, that the unaccountable behaviour of the poor victim arises from its anxiety for its young. The only instances in which I have seen snakes endeavoring to get possession of birds, was at a time of the year when they had no young to take care of. Squirrels generally have their nests on such lofty trees in our forests, that it is very doubtful whether a snake's range of vision could reach so far, therefore, it must be something more than fear which can bring a squirrel down from his secure habitation, one hundred or one hundred and fifty feet from the ground, to become the easy and unresisting prey of a serpent. If he should be surprised on the ground, what prevents him from ascending the next tree and soon losing himself among the foliage of those which are in the neighborhood. I do not attempt to explain the thing, but call the attention of the reader of these observations to the behaviour of cats to birds, and of cats and dogs to men when they wish to obtain any thing from them. If there is any fascination in the steadfast gaze of the eyes, they attempt to employ it upon us.

It may not be out of the way at the end of these lines, to correct an error which is now current among naturalists, which is, that the fangs in the genus Elaps are always and permanently perpendicular, and not laid back as in other venomous serpents. This is not the case. Upon examining fresh killed specimens, I find them placed exactly as they are in a rattlesnake, and erected in the same way when they wish to bite, that is by throwing back a part of the upper hstanding all that has been said of their harmless nature, they will other venomous snake will, as I experienced last spring with st I have ever seen. Moreover, in some foreign specimens of this ngs were always perpendicular in the jaw, the mouth would not out their piercing entirely through the lower lip.

Committee on Mr. Girard's descriptions of new Reptiles, reported of publication.

Descripti f new species of Reptiles, collected by the U. S. Exploring Expedi-, under the command of Capt. Charles Wilkes, U. S. N.

SECOND PART.—*Including the species of Batrachians, exotic to North America.*

BY CHARLES GIRARD.

Taking for our guidance the structure of the vomerine or palatine teeth, that of t npanum and tongue, we have been led to subdivide the genus *Cystigna-* derstood by Duméril and Bibron, in the "Erpétologie générale." The of the fingers and toes have afforded accessory characters which are neglected, although comparatively less important.

Fitz.—Vomerine teeth disposed in two transverse series, each an angular arch or a regular curve, and situated behind the rue sligh tch teriorly. Tympanum very distinct. ith a r en embrane or entirely free.

s OCE (*C. ocellatus*, Dum. and B.), L. LA- *abyrinthica*, , *C. labyrinthicus*, Dum. and B.), and L. (*C. typhonius*, D and B.), belong to this genus.

NATHUS, Wagl.—Vomerine teeth disposed upon a transverse or oblique e or less interrupted in the middle, and situated either between the trils or behind them. Tongue circular, subcircular or subcordiform, orly entire, and either attached by its whole surface, or very slightly free behind. Tympanum distinct. Toes either bordered by a membranous fold or slightly webbed at their base.

Obs.—CYSTIGNATHUS MACROGLOSSUS, C. GRACILIS and C. ROSEUS of Duméril and Bibron will remain in this genus.

PLEURODEMA, Tsch.—Vomerine teeth disposed in two oblong groups situated between the inner nostrils. Tongue subcircular, either slightly emarginated or entire posteriorly. Tympanum indistinct. Toes either entirely free, or else provided with a rudimentary membrane at their base or along their margin. Skin pustulous or granular; sometimes a large lumbar gland on each side.

Obs.—PLEURODEMA ARUNCO (*Bufo arunco*, Schn.); P. BIBRONI, Tsch. (*C. bibroni*, Dum. and B.); P. BUFONIUM, Bell; P. DARWINII, Bell; P. ELEGANS, Bell, and P. NODOSA (*C. nodosus*, Dum and B.), constitute another generic group.

CRINIA, Tsch.—Vomerine teeth either absent or else existing in a rudimentary state. Tongue elongated, subelliptical, posteriorly entire, or very slightly emarginate. Tympanum indistinct or hidden under the skin. Eustachian tubes very small. Fingers and toes subcylindrical, tapering to a point and perfectly free.

Obs.—This genus as characterized above, may not meet with the approbation of Erpetologists, as combining species deprived of vomerine teeth and others possessing but very few of them. Indeed, if we had more than one species differing from the others in similar characters, we should not hesitate to make two genera in the following manner:

CRINIA, Tsch.—Vomerine teeth few, constituting two groups at the posterior margin of the inner nostrils. Tongue entire, oblong. Tympanum not very distinct. Eustachian tubes quite small. Fingers and toes without membrane.—CRINIA GEORGIANA, Tsch.]

Ranidella, Girard.—Palate without teeth. Tongue elongated, subelliptica , posteriorly slightly emarginated and free upon one-third of its length. Tympanum not visible. Eustachian tubes minute. Fingers and toes subcylindrical, tapering into a point and perfectly free.—**Ranidella signifera**, Girard.

With no specimen of *Crinia georgiana* at our command, we have been unable to compare critically the characters of Crinias as just subdivided. For this reason we do not raise *Ranidella* to the rank of a genus for the present. If future investigations do not bring to light other species of each of these subdivisions, we shall not hesitate to consider *Crinia georgiana* and *Ranidella signifera* as congeneric species, in which the character of the vomerine teeth loses that importance which it has elsewhere.

Ranidella, as circumscribed above, is related to *Oxyglossus* and *Leiuperus* in the absence of teeth on the palate, differing from both, however, in having its tympanum entirely hidden and its toes perfectly free.

Crinia georgiana is an analogue, in Australia, of the South American Pleurodemas.

WAGLERIA, Girard.—Vomerine teeth disposed on a single and very long transverse row, situated behind the inner nostrils. Tympanum small and not very distinct. Toes bordered by a membranous fold in the male. Tongue but slightly notched posteriorly.

Obs.—**Wagleria peronii** (*C. peronii*, D. and B.), and **W. dorsalis** (*C. dorsalis*, Gray, should the latter prove specifically distinct from the first), are the two species which constitute this genus. Both species are natives of New Holland, and of the first, specimens were collected by the Exploring Expedition in the south-eastern part of Australia. The latter we only know through the brief description of J. E. Gray.

KASSINA, Girard.—Vomerine teeth disposed in two V-shaped groups, situated behind the inner nostrils. Tympanum not distinct. Tongue cordiform, emarginated behind. Fingers free, the first shorter than the second. Toes entirely deprived of membrane. Skin perfectly smooth.

Obs.—**Kassina senegalensis** (*Cystign. senegalensis*, Dum. and B.) is the only species hitherto known of this genus, the diagnosis of which may hereafter require some slight modifications, upon the reception of other species presenting the same disposition of the vomerine teeth.

Thus, the genera *Leptodactylus*, *Cystignathus* and *Pleurodema* are American; the genera *Wagleria*, *Crinia* and *Ranidella* are Australian, and the genus *Kassina* is African.

From want of specimens, and accuracy in their descriptions, we have not been able to determine, generically, *Cystignathus aeneus*, Guich., *C. schomburghii*, Trosch., and *C. sylvestris*, Tsch., all three from South America. The latter, apparently, belongs to the genus *Cystignathus* proper, but seems to be provided with a much smaller number of teeth, and likewise situated more anteriorly than is usually the case in that group. The visibility of the tympanum and the presence of a partial membrane to the toes are strongly suggestive of that genus.

Ranidae.

1. **Leptodactylus serialis**, G.—Greenish brown on the head and back; yellowish brown on the sides and legs, with series of black maculae. A post-orbital vitta tapering into a point towards the shoulder. Margin of the jaws maculated with black and white. Vomerine teeth disposed upon angular arches. Tongue cordiform, posteriorly free upon one third of its length, slightly emarginated at both extremities. Toes with a rudimentary membrane at their base and along their margin. Skin with indistinct longitudinal dorsal folds, otherwise smooth.

Obs.—Allied to *L. typhonius*, but distinguished from the latter by the structure of the toes.

Locality.—Rio de Janeiro, 1839.

2. Leptodactylus caliginosus, G.—Reddish brown, with indistinct blackish maculæ on the back, more conspicuous on the hind legs; a large subcordiform occipital macula. A post-ocular vitta extending a little behind the tympanum. Vomerine teeth in regular curves. Tongue subelliptical, elongated, slightly notched at both extremities. Toes provided with a rudimentary membrane at their base and margined by a membranous fold. Skin smooth in the adult, traces of longitudinal folds in the young.

Obs.—Differs from the preceding species chiefly in the disposition of the vomerine teeth.

Locality.—Rio de Janeiro, Brazil.

3. Cystignathus parvulus, G.—Yellowish brown above, with a deep chestnut narrow band extending from the tip of the snout to beyond the middle of the length of the body. Beneath unicolor. Head subtriangular, wedge-shaped. Anterior part of the snout depressed and regularly inclined towards the margin of the upper jaw. Legs quite slender.

Locality.—Rio de Janeiro, Brazil.

4. Cystignathus nebulosus, G.—Above, light brown, white and clouded with reddish brown; a large subtriangular, occipital, deep brown patch. A post-ocular vitta of the same color. Hind legs barred with reddish brown. Beneath unicolor, whitish anteriorly, reddish posteriorly. Vomerine teeth in two elongated groups, obliquely situated between the inner nostrils; latter proportionally large. Tympanum not visible exteriorly. Eustachian tubes very minute. No lumbar glands. Fingers and toes depressed, latter margined with a membranous fold, otherwise smooth. Two metatarsal tubercles. Tarsus with a ridge along its inner margin. Skin minutely granular.

Locality.—Valparaiso, Chili.

5. Crinia (Ranidella) signifera, G.—Skin above subtuberculous, beneath glandulous. A spear-shaped blotch on the head. A broad dorsal, deep brown band, forked anteriorly to receive the point of the cephalic spear-shaped blotch. On each side of the latter a greyish or yellowish grey narrow band, beneath which is another, still narrower, blackish brown band. Sides of abdomen and belly marmorated.

Locality.—New Holland.

HYLÆ.

Ranoidea, Tsch.—Vomerine teeth disposed in two groups situated between the inner nostrils. Tongue large, subcircular or elliptical, slightly notched posteriorly, and free for about one-third or less of its length. Tympanum distinct. Eustachian tubes of considerable development. Fingers and toes depressed, terminated by subelliptical disks, comparatively small. Fingers perfectly free; toes webbed to a considerable degree. A vocal subgular bladder in the male.

Obs.—The characters of this genus when compared to those of *Hyla*, may appear negative. The general physiognomy, which is more ranoid than hyloid, and the smallness of the subdigital disks, are the two most prominent features of this group. The addition of two species partaking of the characters of the one, unique when the genus was made, will add to the importance of retaining it in the erpetological system. If habits go for any thing in the distinction of genera, the fact that *Ranoidea* are more frequently seen about the waters than on the trees, would certainly have a weight upon the question.

6. Ranoidea resplendens, G.—Deep green above, maculated and streaked with gold. Head depressed, elongated. Tongue of medium size, notched and free posteriorly. Vomerine teeth in two transversely elongated groups, situated between the inner nostrils; latter semicircular, large. Openings of the Eustachian tubes as large as the inner nostrils. Tympanum very distinct, large, elliptical. Fingers free. Toes webbed up to the digital disks; membrane emarginate.

Locality.—Wollongong Illawara, near the coast.

7. Ranoidea flavoviridis, G.—Above green, with a black line along the can-

thus rostralis, and a black band behind the eye. Posterior parts of thighs purplish, with white dots. Head flat, discoid. Tongue large, elliptical, slightly notched and free posteriorly. Vomerine teeth in two oblong groups between the inner nostrils, the latter being very large. Tympanum of medium size, circular. Fingers free. Toes webbed to the middle of the last phalanx; membrane slightly emarginated.

Locality.—Wollongong Illawara; about fresh water streams.

HYLARANA, Tsch.—Tongue elongated, narrower in front, broad and forked posteriorly. Two groups of vomerine teeth, between and sometimes a little behind the inner nostrils. Tympanum very distinct. Eustachian tubes of medium size. Four fingers entirely free; toes united by a membrane to almost their whole length; subdigital disks of medium size.

Obs.—*Hylarana* has the priority over *Lymnodytes*, therefore it is here adopted. HYLARANA ERYTHRÆA (*Hyla erythræa*, Schleg.); H. CHALCONOTA (*Hyla chalconota*, Schleg.), and H. WAIGIENSIS (*Lymnodytes waigiensis*, Dum. and B.)

8. HYLARANA MINDANENSIS, G.—Uniform greenish brown, lighter beneath; upper jaw provided with several darker spots. Vomerine teeth disposed in two elongated groups or series, situated between and behind the inner nostrils. Skin provided with small pustules, but showing no traces of a lateral glandulous chain.

Locality.—Caldera, on Mindanoo.

HALOPHILA, Girard.—Vomerine teeth forming two oblong groups, situated between and somewhat behind the inner nostrils. Tongue elongated, lanceolated, narrow anteriorly, forked posteriorly, and free for about half its length. Tympanum very distinct. Eustachian tubes of medium size. Four fingers entirely destitute of membrane. Toes united at their base only by a rudimentary membrane. Subdigital and terminal disks either but little or much developed.

9. HALOPHILA HEROS, G.—Greenish brown, with a dorsal light and narrow line. Sides of abdomen and legs with blackish spots; beneath dull brown. Rudimentary membrane of the base of the toes almost obliterated. Subdigital disks small in both pairs of limbs.

Locality.—Sebukea, Fiji Islands.

10. HALOPHILA VITIENSIS, G.—Uniform yellowish orange when adult; the young yellowish purple, with golden reflections on the head and back, a whitish line on the middle of the back, flanked with black maculæ; legs transversely barred with black. Rudimentary membrane of the base of the toes very distinct. Subdigital disks large in both pairs of limbs.

Locality.—Sebuka, Fiji Islands.

11. HYLODES PARVUS, G.—Uniform blackish brown. Vomerine teeth disposed upon two elongated groups obliquely situated behind the inner nostrils. Tongue cordiform, posteriorly entire. Fingers and toes subcylindrical and slender. Digital disk small.

Locality.—Rio de Janeiro, Brazil.

12. ELOSIA BUFONIUM, G.—Vomerine teeth in two small oblong groups, situated obliquely between the inner nostrils, in advance of the posterior margin of these openings. Tongue discoid, large. Tympanum of medium size. Eyes large and prominent. Legs comparatively small. Two very small metatarsal tubercles, and a membranous ridge along the inside of the tarsus. Skin quite smooth, without any pustules at all.

Locality.—Rio de Janeiro, Brazil.

13. ELOSIA VOMERINA, G.—Head and back dusky brown; posterior part of back and legs maculated. A deep brown band extending from the side of the head over the eye to the side of the back. Beneath unicolor. Vomerine teeth disposed on a transverse line, interrupted in its middle, and placed on a level with the anterior margin of the inner nostrils. Tongue subcircular, discoid. Tympanum of medium size. Eyes well developed. Legs long and slender. Two

metatarsal tubercles, and a cutaneous fold on the inside of the tarsus. Skin smooth.

Locality.—Rio de Janeiro, Brazil.

BUFONIDÆ.

14. RHINODERMA SIGNIFERA, G.—Head and body above reddish, dotted with white. A few transverse, narrow black bars on the hind legs; an elongated whitish spot behind the occiput; an elliptical, greyish, lumbar ocellus, black-spotted posteriorly. Abdomen maculated with white and black. Toes elongated, webbed at their base only. Tubercles under the articulations of the fingers and the toes.

Locality.—Rio de Janeiro, Brazil.

15. BUFO LUGUBROSUS, G.—Head and dorsal region blueish black; sides reddish grey with black patches. Tympanum black; limbs black spotted. Beneath dull yellowish white. First finger longer than the second, and almost as long as the third. Upper surface of head grooved from occiput to the snout. Eyes protected anteriorly and posteriorly by an elevated ridge. Tympanum quite small. Parotids of medium size, not very conspicuous. Toes webbed at their base only. Two metatarsal tubercles, and another at the base of the inner toe. A membranous ridge along the inner side of the tarsus. Skin glandulous and granulated.

Locality.—Valparaiso, Chili.

16. BUFO GRACILIS, G.—Upper parts yellowish brown: a yellow dorsal vitta, on each side of which are black angular and irregular spots. Limbs marked with blackish blotches.. Sides light yellow. Beneath dull yellow. First finger longer than the second, and almost as long as the third. Upper surface of head, between and behind the eyes, concave. Snout even above, and obliquely truncated inwardly. Tympanum comparatively large. Parotids very small and exiguous; a lateral glandulous fold of the skin from the parotids to the groins. Toes webbed only at their base. Metatarsal tubercles inconspicuous. A membranous fold along the inner side of the tarsus. Skin granular.

Locality.—Rio de Janeiro, Brazil.

BUFONELLA, Girard.—Tongue elongated, broadest posteriorly and free to a certain extent, slightly emarginated behind. No teeth on the palate. Tympanum distinct. No parotid glands. Four fingers, free and subcylindrical. Five toes, of the same form as the fingers, neither webbed nor provided with any rudimentary membrane.

Obs.—Allied to *Bufo*, *Engystoma* and *Breviceps*.

17. BUFONELLA CRUCIFERA, G.—Deep brown above; back dotted with yellow; a yellow spot at the origin of the arms; a yellow band across the head, over the eyelid, sending off a medial branch to the snout; a yellow dorsal vitta on the posterior half of the body. Beneath blackish brown, with large yellowish maculæ under the head, belly and legs. Tip of fingers and toes yellow. Head and body elongated; former depressed; latter subcylindrical. First finger shorter than the second. Toes free. Metatarsal tubercles indistinct.

Locality.—New Holland.

METAEUS, Girard.—Tongue subelliptical, entire, free posteriorly for about half of its length. Palate without teeth. Tympanum hidden under the skin. No parotid glands. Four fingers and five toes completely free. Two metatarsal tubercles.

Obs.—Related to *Engystoma*.

18. METAEUS TIMIDUS, G.—Greenish brown above, maculated with brownish black. A vitta extends from the snout, across the eye, to the shoulder. Head large, rounded on the snout. Fingers and toes subcylindrical. Skin provided with small pustules.

Locality.—Valparaiso, Chili.

The Committee on Dr. Hoy's continuation of his "Notes on the Ornithology of Wisconsin," reported in favor of publication.

Notes on the Ornithology of Wisconsin.—Water Birds.

[Concluded.]

RALLIDÆ, (6 species.)

*Gallinula galeata, *Lich.*
Abundant as far north as Lake Winnebago, latitude 44°.

*Fulica Americana, *Gmel.*
Common in all large marshes.

*Rallus elegans, *Aud.*
Abundant, nest in the prairie slews.

*Rallus Virginianus, *Linn.*
Common.

*Ortygometra Carolina, *Linn.*
Greatly abundant spring and fall, a few remain during summer to nest.

*Ortygometra noveboracensis, *Lath.*
By no means uncommon. The young of this and the preceding three species of Rail are fully fledged by the 15th of August.

GRUIDÆ, (10 species.)

Grus Americana, *Forster.*
A few white sandhill cranes are occasionally seen in the western part of the State, near the Mississippi, but never approach the Lake shores, where the following species is common. It would appear that the white is a more southern species than the brown.

*Grus Canadensis, *Temm.*
Found on all our large prairies. Although we have seen large flights of these birds, we never saw, or heard of, a white individual within one hundred miles of Lake Michigan. A pair has nested regularly for fifteen years in a swamp nine miles from Racine, (we have noticed them ourselves regularly for the last seven years,) and they still continue in color unchanged. The locality of this nest is in a few tussocks of grass, in the midst of an almost impenetrable swamp, the nest is composed of coarse grass, built up in a conical form eighteen inches or two feet high, so situated that when the parent bird sits upon, or rather astride of this pyramidal nest, her feet hang down on either side into the water. The old nest is regularly repaired every spring.

Tantalus loculator, *Linn.*
There is a fine specimen of this southern bird in the museum of the Wisconsin State Historical Society, at Madison, which was shot near Milwaukie, September, 1852.

*Ardea Herodias, *Linn.*
A common species.

*Ardea virescens, *Linn.*
Not uncommon in the wooded swamps of the timbered districts, never met with in the prairie marshes.

*Botaurus lentiginosus, *Swains.*
Abundant in the marshes and *slews* of the prairies. The young are fully fledged by the 20th of July. We have witnessed the bittern emit his peculiar *call*—"pump-aü-gàh;" the head is drawn up to the breast, the neck being much dilated, when the first syllable *pump* is uttered in a heavy low tone, the second syllable *aü* is emitted with a partial extension of the neck, and the final *gah* is accompanied with a violent darting forward of the head to the full extent of his

long neck. This ludicrous performance is repeated three or four times in succession.

*Ardeola exilis, _Bonap._
Abundant on the reedy marshes, never found in the dark, shaded, woody swamps.

Egretta leuce, _Jardine._
A single individual shot near Racine, June, 1851.

*Egretta candidissima, _Gmel._
Not an uncommon species along the borders of small lakes. Nest in communities, on trees in Tamarack swamps.

Egretta caerulea, _Jard._
Shot one August 28th, 1848, on Root river.

CHARADRIADÆ, (6 species.)

Charadrius marmoratus, _Wagler._
Visit us in great numbers spring and fall.

Charadrius melodius, _Ord._
Occasionally met with in the fall, not numerous.

*Charadrius vociferus, _Linn._
Common, arrive from 18th to 25th of March.

Charadrius semipalmatus, _Bonap._
A few only met in May and October. Rare.

Charadrius Helveticus, _Linn._
Not abundant, April and October.

Strepsilas interpres, _Linn._
Common, spring and autumn.

SCOLOPACIDÆ, (27 species.)

Tringa alpinus, _Linn._
Only met with sparingly, April and October.

Tringa shinzii, _Brehm._
A rare species with us. Spring and fall.

Tringa pectoralis, _Bonap._
We have only noticed this species in autumn.

Tringa rufescens, _Vieill._
Quite common from September 15th to October 10th. Never met in the spring.

Tringa maritima, _Brunnich._
Greatly abundant from 15th of April to 20th of May.

Tringa minuta(?), _Leister._
Not common. A few found on the borders of small lakes.

*Tringa pusilla, _Wils._
Common. Nest in the reedy marshes.

Tringa cinerea, _Wils._
We have only met this bird in October. Rare.

Tringa semipalmata, _Wils._
Shot several October 1st, 1850. Rare.

Tringa Douglasii, _Swains._
Shot two April 10th, 1848. Rare.

Calidris arenaria, _Illiger._
Common on the lake shore spring and fall.

Totanus semipalmatus, *Lath.*
We have met this species as late as the 10th of June. Not numerous.

*Totanus vociferus, *Wils.*
Abundant. Nest in all large marshes.

*Totanus flavipes, *Lath.*
Common.

*Totanus solitarius, *Wilson.*
Not uncommon.

*Totanus macularius, *Wilson.*
Common.

*Totanus Bartramius, *Wilson.*
Abundant. Nest on the high rolling prairies.

Limosa fedoa, *Linn.*
Not an uncommon bird. We saw a pair on a marshy slew near Wisconsin river, June 15th, 1848, where they were probably nesting.

Limosa Hudsonica, *Lath.*
We shot a single bird of this well marked species November 1st, 1850.

Macrorhamphus griseus, *Leach.*
Found sparingly spring and fall.

*Scolopax Wilsonii, *Temm.*
Common. Nest abundantly with us.

*Rusticola minor, *Vieill.*
The first woodcock noticed in this section was in 1817, since which time they have been rapidly on the increase.

Recurvirostra Americana, *Linn.*
We saw a pair on a marsh near Fox river, July 26th, 1846, where they had probably nested; we also met with a small party on the Des Plaine, May, 1847.

Himantopus nigricollis, *Vieill.*
Met a small flock of these singular birds near Racine, April, 1847.

*Numenius longirostris, *Wilson.*
Common on the large thinly settled prairies. We found them nesting in abundance on Sun Prairie, Columbia county; also within six miles of Ceresco.

*Numenius Hudsonicus, *Lath.*
Common spring and fall. We found a few nesting near Fox Lake, June 15th, 1848.

Numenius borealis, *Lath.*
Met with in company with the preceding in early spring and fall. Rare.

PINNATIPEDES, (2 species.)

Phalaropus fulicarius, *Bonap.*
Met with a small flock first of November, 1847. Rare.

*Lobipes Wilsonii, *Jardine.*
Not an abundant species. Prof. S. F. Baird shot one near Racine July 15th, 1853. Nests sparingly in marshes.

ANATIDAE, (29 species.)

*Anser Canadensis, *Linn.*
Greatly abundant spring and fall, and not a few remain during the summer to nest.

Anser hyperboreus, *Gmel.*
This species is seen late in the fall in large flocks, numbering sometimes not less than two hundred.

Anser albifrons, *Bechst.*
Met in large numbers spring and fall.

Anser leucopsis, *Bechst.*
In December, 1850, there was a single barnacle-goose kept about the harbor for two weeks.

Anser bernicla, *Linn.*
Occasionally met on the lake shore. Rare.

Anser Hutchinsii, *Rich.*
Large flocks of this species occasionally visit us in the fall, rarely seen in the spring.

Cygnus Americanus, *Sharpless.*
Visit us regularly spring and fall.

Cygnus buccinator, *Rich.*
This larger swan is frequently seen, and occasionally shot in our vicinity.

*Anas clypeata, *Linn.*
Not uncommon. A few nest in the prairie slews.

*Anas boschas, *Linn.*
Common.

*Anas obscurus, *Gmel.*
Numerous in the interior—seldom visit the lake.

Anas strepera, *Linn.*
Shot 2d March, 1848, the only specimens we ever met with.

Dafila acuta, *Linn.*
Common only early in spring and late in the fall.

Mareca Americana, *Gmel.*
Abundant.

*Querquedula discors, *Linn.*
Very abundant. Nest in all the large slews.

*Querquedula Carolinensis, *Steph.*
Common.

*Dendronessa sponsa, *Linn.*
Common.

Fuligula rubida, *Wilson.*
Met occasionally fall and spring. Not abundant.

Fuligula valisneria, *Wilson.*
Rarely met. March and October.

Fuligula ferina, *Linn.*
Not uncommon.

*Fuligula marila, *Linn*
Common.

*Fuligula rufitorques, *Bonap.*
Common. Nests on the borders of grassy lakes.

Clangula vulgaris, *Fleming.*
Common on the lake in winter and early spring.

Clangula albeola, *Linn.*
Common.

Clangula histrionica, *Linn.*
One shot in Racine harbor December 15th, 1851. Rare.

Harelda glacialis, *Linn.*

Common on the lake during winter and early spring.

Mergus merganser, *Linn.*

Common. Remain during winter.

*Mergus serrator, *Linn.*

Common. A few nest with us.

*Mergus cucullatus, *Linn.*

Abundant. Nest on the reedy flats.

PELACANIDÆ, (2 species.)

Phalacrocorax dilophus, *Swain.*

Occasionally visit our rivers and small lakes. Rare.

Pelecanus onocrotalus, *Linn.*

About the 10th of March the pelicans arrive, and after spending a few days in the small lakes, go further north.

LARIDÆ, (9 species.)

Sterna cayana, *Lath.*

Rarely visit us.

*Sterna nigra, *Linn.*

Abundant about lakelets and marshes. Never found on Lake Michigan.

Sterna anglica, *Montague*

We have but seldom met the marsh Tern in this vicinity.

*Sterna hirundo, *Linn.*

Abundant. Nest on a small rocky island in the northern part of Lake Michigan.

Larus Franklinii, *Rich.*

Visit us only in severe winters. Rare.

Larus Bonapartii, *Rich.*

Associate with the common Tern fall and spring in great numbers.

Larus glaucus, *Brunnich.*

Another rare winter visiter.

*Larus argentatus, *Brunnich.*

The common gull of the lakes. Nest on a rocky island in company with the common Tern.

Larus zonorhynchus, *Rich.*

A rare species with us. Mr. Samuel Circum has a specimen shot at Milwaukie.

COLYMBIDÆ, (5 species.)

*Colymbus glacialis, *Linn.*

Common.

Colymbus septentrionalis, *Linn.*

Not uncommon during winter.

Podiceps rubricollis, *Lath.*

Only found in winter. Rare.

Podiceps cornutus, *Linn.*

Common spring and fall.

*Podiceps Carolinensis.

Common. Nest in marshes.

On leave granted, Dr. Le Conte presented for publication a paper by Profs. W. H. Harvey and J. W. Bailey, on new species of Diatomaceæ, collected by the U. S. Exploring Expedition; which was referred to Drs. Leidy, Le Conte, and Zantzinger.

The Committee stated that the paper had already been examined and was approved by them, and they accordingly reported in favor of its publication in the Proceedings.

New species of Diatomaceæ, collected by the United States Exploring Expedition, under the command of Capt. Wilkes, U. S. N.

By Professor W. H. Harvey and Professor J. W. Bailey.

The species of Diatomaceæ here described as new, together with the other species included in the list on page 431, were detected either as parasites upon Algæ, or entangled in mud adhering to shells, algæ, &c., brought home by the Exploring Expedition under the command of Capt. Wilkes.

1. Amphitetras favosa, Harvey et Bailey. Loricis tabularibus; lateribus vix concavis, primario; secundario quadrangulo, angulis fere rectis vix productis. superfice cellulis magnis hexagonis tessellata. *Hab.* Mindanao.

2. Amphitetras Wilkesii, H. et B.; loricis prismatico-tabularibus, lateribus concavis, primario longitudinaliter striato-punctato medio transversim zonato; secundario quadrangulo, angulis productis rotundatis, superficie cellulis minutis in lineas simplices furcatasque dispositis notata, prominentiis jugalibus punctulatis. *Hab.* Puget's Sound.

3. Aulacodiscus Oreganus, H. et B.; loricâ prominentiis tredecim intramarginalibus instructa, a quibus tot radii fere ad umbonem procurrent; superficie præter umbonem glaberrimum, minute punctata iridescente. *Hab.* Puget's Sound.

4. Campylodiscus Kutzingii, H. et B.; sellæformis late marginata sulcis subquinquaginta transversis continuis curvatis impressa. *Hab.* Mindanao.

5. Cocconeis Parmula, H. et B.; late elliptica, linea media longitudinali notata, utroque latere costis (vel sulcis) transversis magnis 10-12 irregularibus impressa; superficie transversim striato-granulata. *Hab.* Tahiti.

6. Cocconeis rhombifera, H. et B.; late elliptica vel suborbicularis linea media oblique-longitudinali sigmoidea areolam glabratam percurrente quæ apice et basi attenuata est, et versus umbonem in rhombi formam ampliata; superficie decussatim et transversim punctata. *Hab.* Puget's Sound.

7. Cocconeis sulcata, H. et B.; late elliptica vel suborbicularis transversim sulcata, subcis 30–40 arcuatis. *Hab.* Puget's Sound.

8. Hyalosira punctata, H. et B.; loricis magnis in catenas longas co-ordinatis rectangulis subquadratis transversim interrupté vittatis; vittis medio loricæ alternantibus granulatis, alternis serie punctarum insignium ornatis. *Hab.* Tahiti.

9. Isthmia minima, H. et B.; zona transversali subtilissime decussatim punctata, lateribus (secundariis) cellulis magnis granulata. *Hab.* Rio Janeiro and Sooloo Sea.

10. Triceratium concavum, H. et B.; loricâ lateribus valde concavis angulis rotundatis, superficie triquetrâ cellulis minutis in lineas radiantes simplices furcatasque co-ordinatis notata; prominentiis jugalibus punctulatis. *Hab.* Tahiti.

11. Triceratium gibbosum, H. et B.; parvum, fere inflato-globosum, lateribus valde convexis, angulis prominentibus, superficie ut in T. concavum notata. *Hab.* Tahiti.

12. Triceratium orientale, H. et B.; magnum; lateribus convexis angulis

productis obtusis, superficie triquetrâ cellulis magnis hexagonis favosa. *Hab.* Mindanao.

13. **Triceratium Wilkesii**, H. et B.; loricâ lateribus convexiusculis angulis rotundatis, superficie ut in T. concavum notata. *Hab.* Puget's Sound.

Appendix.

14. **Lagena Williamsoni**, H. et B.; testa bicellulosa, cellulis diversis, inferiore ellipsoidea longitudinaliter costata in isthmum infundibuliformem attenuata, et ad cellulam superiorem glabram semi-lagenæformem (vel inverse infundibuliformem) ferruminata; collo breviusculo recto, ore subampliato. *Hab.* Mindanao.

List of Diatomaceæ, collected by the United States Exploring Expedition under Capt. Wilkes, U. S. N.

By Prof. J. W. Bailey.

Although no collection of the Diatomaceæ was purposely made by the Exploring Expedition, a careful examination of various specimens of marine mud, &c. adhering to the algæ, shells, &c., which were brought home by Capt. Wilkes, was rewarded by the discovery of many interesting forms, a list of which is here given in the order of their geographical distribution.

Puget's Sound, Oregon.

Diatomaceæ.

Actinoptychus senarius, Ehr.
*Aulacodiscus Oreganus, H. et B.
*Amphitetras Wilkesii, H. et B.
Arachnoidiscus Ehrenbergii, Bailey.
*Cocconeis rhombifera, H. et B.
* " sulcata, H. et B.
Coscinodiscus oculus-iridis, Ehr.
" radiatus "
" excentricus "
Epithemia gibberula, Kütz.
Grammatophora angulosa, Ehr.
" stricta, "
Grammatophora undulosa, Ehr.
Isthmia obliquata
Rhabdonema arcuatum, Kütz.
Surirella fastuosa, Ehr.
*Triceratium Wilkesii, H. et B.

Spongiolites, &c.

Spongiolites Agaricus, Ehr.
Dictyocha splendens, Ehr. This is now known to be a calcareous plate from a species of Synapta. It dissolves in acids, and polarizes light.

San Francisco, California.

Arachnoidiscus Ehrenbergii, Bail.
Cocconeis scutellum, Ehr.
Gomphonema minutissima, Ehr.

Terra del Fuego.

Entopyla australis, Ehr.
Grammatophora serpentina, Ehr.
" stricta "

Rio Janeiro.

Climacosphænia australis, Kütz.
Grammatophora oceanica, Ehr.
*Isthmia minima, H. et B.
Dictyocha splendens, Ehr.
Spongiolites anchora, "
Both of these come from the calcareous particles of an Echinoderm (Synapta).

Valparaiso.

Stauroptera aspera, Ehr.
Cocconeis scutellum, "
Actinoptychus senarius, Ehr.
Gallionella sulcata, Ehr.
Grammatophora hamata, Ehr.
Dictyocha speculum, "

Phillipine Islands.

*Amphitetras favosa, H. et B.
Amphora libyca, Ehr.
*Campylodiscus Kützingii, H. et B.
Coscinodiscus linearis, Ehr.
Denticella Biddulphia, "
Gallionella sulcata, "
Grammatophora oceanica, Ehr.

Navicula elongata, Ehr.
" Lyra, "
Pinnularia didyma, "
Surirella fastuosa "
Tetragramma asiatica, Ehr.
*Triceratium orientale, H. et B.
Dictyocha splendens.
Spongiolites Agaricus.

Sooloo Sea.

Coscinodiscus excentricus, Ehr.
" marginatus "
Gallionella sulcata, "
Grammatophora oceanica, "
*Isthmia minima, H. et B.

Surirella fastuosa, Ehr.
Triceratium Favus, β. acuminatus, Bail.
Spongiolites Agaricus, Ehr. In situ, forming bunches in the tissue of a sponge.

Wilson's Island.

POUMOUTA GROUP.

Climacosphænia australis, Kütz.
Podocystis adriatica, Kütz.

Stauroptera aspera, Ehr.
Pinnularia didyma, "

Tahiti.

Climacosphænia australis, Kütz.
*Cocconeis Parmula, H. et B.
Denticella Biddulphia ? Ehr.
Grammatophora oceanica, Ehr.
Gallionella sulcata, "
*Hyalosira punctata, H. et B.

Navicula Sigma, Ehr.
Podocystis adriatica, Kütz.
Stauroptera aspera, Ehr.
Triceratium concavum, H. et B.
Epithemia musculus, Kütz.

Tongataboo.

Denticella Biddulphia ? Ehr.
Epithemia musculus, Kütz.

Grammatophora oceanica, Ehr.
Synedra superba, Kütz.

New Zealand.

A large collection of marine Algæ from New Zealand was examined, but no Diatomaceæ could be detected adhering to them.

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* Those marked thus (*) are believed to be new, and are described on page 430.

November 1, 1853.

Vice-President **Bridges** in the Chair.

Communications were read

From the American Philosophical Society, dated Oct. 7th, 1853; from the Institute of France, dated Paris 22d Sept., 1853; from the Royal Academy of Sciences of Amsterdam, dated 4th Oct., 1853, severally acknowledging the receipt of the Proceedings of the Academy.

From the Royal Bavarian Academy, dated Munich, 4th June, 1853; from the Wurtemburg Society of Natural History; from the Imperial Academy of Sciences of Vienna, dated 14th Feb. 1853; from the Acad. C. L. C. Nat. Curiosorum, dated Breslau, 20th April, 1853; from Prof. E. Grube, of Dorpat, through Prof. Flügel, of Leipsic, dated July 8th, 1853, severally transmitting donations to the Library announced this evening.

From Commander Marston, U. S. Navy, dated Philadelphia, Oct. 19, 1853, accompanying specimens of colored clay dredged from the bottom of the Delaware River near the Navy Yard.

From Dr. Samuel Webber, of Charlestown, New Hampshire, dated Oct. 12th, 1853, addressed to Dr. Elwyn, transmitting specimens of fishes infested with a species of Distoma.

From the Rev. Charles Fox, dated Detroit, Michigan, Oct. 14, 1853, acknowledging the receipt of his notice of election as a Correspondent.

From Mr. Wm. E. Moore, dated Fort des Moines, Iowa, Oct. 15th. 1853, desiring exchanges. Referred to the Curators.

Dr. Leidy stated that the nodular bodies imbedded in the tails and fins of the fishes presented by Dr. Webber of Charlestown, N. H., were most probably indurated entozoon sacs. Many ponds and lakes contain a minute worm, resembling in general form a tadpole, belonging to the genus Cercaria. The species, after living for some time in the water, attach themselves to fishes and other living animals, and after losing the tail, form for themselves cysts in the integuments, and subsequently become transformed into a parasitic worm of the genus Distoma.

November 8*th*.

Vice-President **Bridges** in the Chair.

A letter was read from the Rev. A. Constantine Barry, dated Racine, Wisconsin, Oct. 28th, 1853, acknowledging the receipt of his notice of election as a Correspondent.

Also a letter from Dr. Wagner, dated Munich, October 18, 1853, acknowledging the receipt of his notice of election as a Correspondent.

Dr. Leidy read the following letter from Dr. Robt. W. Gibbes, of Columbia, S. C.—

"For many years I endeavored to procure for my friend Dr. Morton, skulls from the ancient mounds of South Carolina, but the bones were always found decayed. I have opened many of them in different parts of the state, and found stone relics in good preservation, but the bones usually in fragments. The long bones are sometimes perfect, but the crania are generally in a crumbling state.

Phillipine Islands.

*Amphitetras favosa, H. et B.
Amphora libyca, Ehr.
*Campylodiscus Kützingii, H. et B.
Coscinodiscus linearis, Ehr.
Denticella Biddulphia, "
Gallionella sulcata, "
Grammatophora oceanica, Ehr.
Navicula elongata, Ehr.
" Lyra, "
Pinnularia didyma, "
Surirella fastuosa "
Tetragramma asiatica, Ehr.
*Triceratium orientale, H. et B.
Dictyocha splendens.
Spongiolites Agaricus.

Sooloo Sea.

Coscinodiscus excentricus, Ehr.
" marginatus "
Gallionella sulcata, "
Grammatophora oceanica, "
*Isthmia minima, H. et B:
Surirella fastuosa, Ehr.
Triceratium Favus, β. acuminatus, Bail.
Spongiolites Agaricus, Ehr. In situ, forming bunches in the tissue of a sponge.

Wilson's Island.

POUMOUTA GROUP.

Climacosphænia australis, Kütz.
Podocystis adriatica, Kütz.
Stauroptera aspera, Ehr.
Pinnularia didyma, "

Tahiti.

Climacosphænia australis, Kütz.
*Cocconeis Parmula, H. et B.
Denticella Biddulphia ? Ehr.
Grammatophora oceanica, Ehr.
Gallionella sulcata, "
*Hyalosira punctata, H. et B.
Navicula Sigma, Ehr.
Podocystis adriatica, Kütz.
Stauroptera aspera, Ehr.
Triceratium concavum, H. et B.
Epithemia musculus, Kütz.

Tongataboo.

Denticella Biddulphia ? Ehr.
Epithemia musculus, Kütz.
Grammatophora oceanica, Ehr.
Synedra superba, Kütz.

New Zealand.

A large collection of marine Algæ from New Zealand was examined, but no Diatomaceæ could be detected adhering to them.

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* Those marked thus (*) are believed to be new, and are described on page 430.

November 22d.

Mr. ORD, President, in the Chair.

Letters were read—

From the Historical Society of Pennsylvania, dated Nov. 15, 1858; from the Royal Geographical Institute of Vienna, dated August 21, 1858; and from the Royal Academy of Sciences of Stockholm, dated July 7, 1858, severally acknowledging the receipt of the Proceedings.

From the Royal Geological Institute of Vienna, dated August 21, 1858; from the Imperial Academy of Sciences of Vienna, dated August 24, 1858, and from Dr. M. Boué, addressed to Mr. Isaac Lea, severally accompanying donations to the Library announced this evening.

Dr. S. Weir Mitchell read a paper entitled "On the effect of some states of Respiration upon the Pulse;" which was referred to Dr. Leidy, Dr. Hallowell and Dr. Ruschenberger.

Mr. Lea remarked that, when recently in Paris, he had found the original specimen of *Mulleria*, described by Ferussac in 1823, and again described by D'Orbigny as *Acostaea*, which identity Mr. Lea had pointed out in a paper read before the Academy in 1851, and published in Part 2, Vol. 2, New Series of the Journal. The specimen alluded to possessed the appended bivalve shell which belonged to D'Orbigny's specimen.

Mr. Lea also stated that the Reptiles referred to by Dr. Mantell, as occurring in the Old Red Sandstone of the North of Scotland, were now believed to be of a much later date.

November 29th.

Vice-President BRIDGES in the Chair.

The Committee on Mr. Girard's paper—"Researches upon Nemerteans and Planarians"—reported in favor of publication in the Journal.

The Committee on the following paper by Dr. Mitchell, reported in favor of publication.

On the influence of some states of Respiration upon the Pulse.

By S. WEIR MITCHELL, M. D.

I desire to offer to the Academy an abstract of a paper upon the influence of some states of respiration on the pulse. As the original paper will shortly appear at length in the American Journal of Medical Science, I shall be as brief as possible.

Laborious respiration may be studied under four heads.

1. The movement of inspiration, thorax in motion.
2. Complete and full inspiration, thorax at rest.
3. The movement of expiration, thorax moving.
4. Complete expiration, thorax at rest.

The dynamical relations of the blood to the heart and lungs will vary in each of these cases.

During inspiratory movement the lung is expanded, and, while air passes into its cells, the blood of the greater vessels and of the two hearts tends to enter its sponge-like tissue, under the influence of atmospheric pressure. A reverse process occurs in expiration, and some blood, as well as most of the air is driven out of the lung.

In 1847, I procured from a mound in the Wateree Swamp in Richland District part of a cranium, which I forwarded to Dr. Morton, and of which he wrote me: "The skull is valuable in my series, as it is the only adult with the teeth that I have ever possessed."

During a heavy freshet in the Congaree River in August, 1852, several Indian cemetries on its banks were exposed, and many explorations were made with a view to the collection of their remains. Numerous bones were found, with many stone implements, but no crania, except the subject of this notice. For it I am indebted to my friend Col. Frank Hampton, who found it on the woodlands Estate of his father a few miles below Columbia. A high, dry sandy bluff was undermined by the current and fell, exposing an ancient burial place in which bones and stone relics with earthen burial urns were abundant. This single skull was found in good preservation, in a dry spot, and next day fortunately the lower maxilla was discovered a few feet off. It belonged to an aged man, and the hole in the right parietal bone indicates that it was caused by violence. A portion of the upper maxilla on each side is broken, as is the lower part of the occipital bone, but the cranium is sufficiently perfect to present an admirable specimen of the aboriginal American, of the Toltecan variety of Dr. Morton. In its dimensions, in some of them, it is larger than the fine cranium (1512, Morton's Catalogue,) from Ohio. The elevation is about the same, but the longitudinal and interparietal diameters, the intermastoid line, and the intermastoid arch are greater. The frontal bone is more flattened, and the occiput equally so—the facial bones are well developed, and an important value is given to the specimen by the ponderous lower jaw, which is wanting in that from Ohio. A number of stone specimens were found at the same time—mostly such as are figured in the work of SQUIER and DAVIS, pp. 217—18 and 237. Several of these are forwarded with the cranium—as well as some long bones.

I take great pleasure in adding this skull to the *Morton Collection* of the Academy, and to congratulate our members on the possession of that noble monument of its late lamented President—his life-labor of love. It is a fortunate privilege that I have in being able to make a contribution to it, in memory of one whose loss has been so deeply felt by the scientific world."

Dr. Wetherill exhibited two specimens of iron crystallized from slags obtained from furnaces in this State: one of these presented a decided octahedral form, and the other was dendritic.

Dr. Wetherill also referred to a peculiar deposit which he had noticed on pigs of iron. This deposit was in needle-shaped crystals with their points next the metal, and their bases outwards, presenting a velvety appearance. It was evidently an aluminous mineral.

Dr. Wetherill had also found at Allentown, Pennsylvania, the copper-colored cubes of the so-called Titanium, consisting of the Cyanuret and Nitruret of Titanium.

November 15*th.*

Vice-President BRIDGES in the Chair.

Letters were read—

From Prof. Joseph Henry, dated Smithsonian Institution, Nov. 10th, 1853, acknowledging the receipt of late Nos. of the Proceedings.

From Dr. J. J. Von Tschudi, dated Vienna, 20th April 1853, transmitting a copy of his Memoir on the Peruvian Language.

Mr. C. Girard presented a paper entitled "Researches upon Nemertians and Planarians," intended for publication in the Journal. Referred to Dr. Ruschenberger, Dr. Goddard, and Dr. Brinton.

movement lowered it in both tubes. Expiratory movement caused it to rise in both.

During numerous vivisections, I noted the following corroborative facts :—

The lung grows pallid in extreme inspiration, it flushes to a deep red in expiration. That this change of color is not due to a mere aggregation of the capillaries, is clear from the following fact. During complete inspiration the lung was scratched so as to open some capillary vessels. No bleeding occurred until the lung was allowed to contract, when the wound began to ooze. The flow of blood was greatest in complete expiration. Care must be taken not to wound any large vessel. The illustrative bearing of these facts upon my preceding remarks is too plain for further comment.

At the moment of complete inspiration. the capillary circulation is retarded or checked. As a consequence there is an accumulation of blood in the pulmonary artery and right heart, and a deficiency of blood in the pulmonary vein and left heart.

Owing to this double disturbance, the heart beats slowly. The same set of causes, produced in another way, lessen the heart beats in one of the stages of asphyxia. This view is also supported in other ways, and by certain facts too numerous for mention here.

In expiratory fixation the heart quickens as I have very amply proved.

This is due to several causes :—

1. In expiration, however complete, the lung still contains enough of air to keep its vesicles moderately open. Therefore the blood traverses its tissue with ease, until asphyxia ensues.

2. The muscular exertion requisite for a complete expiration is one-third greater than that which a full inspiration demands, and as we well know muscular exertion quickens the pulse.

3. Owing to this excess of expiratory force, and to the firm pressure exerted by the condensed lungs upon the heart, that organ is mechanically stimulated. If the heart of an animal be grasped during life it will flutter under the hand with a quick beat, and as if shuddering beneath the compressing agency. If the lung itself is firmly and equally pressed against the heart the same result occurs.

To the combined influence of the three causes above enumerated, I ascribe the rapid pulse of fixed expiration. I have therefore shown that in the movements of respiration, as well as in states of extreme inspiratory and expiratory fixation, the pulmonary circulation is subjected to singular and interesting modifications. I shall close my remarks with a single application.

During inspiration the lungs contain a maximum amount of blood which is to some degree retarded in the capillaries at the moment of inspiratory fulness. It is precisely at this moment that the lungs contain most oxygen. On the other hand, during expiration, and during expiratory fixation, the ærated blood, leaves the lung with the utmost facility. A regulation so beautiful as this should not be allowed to escape attention. For other and equally curious deductions I refer to the essay itself.

The Report of the Corresponding Secretary was read and adopted.

ELECTION.

The Rev. Joseph H. Wythes was elected a *Member* of the Academy.

December 6th.

Vice-President BRIDGES in the Chair.

Letters were read—

From the Zoological and Botanical Society of Vienna, dated 21st Aug., 1853, transmitting vols. 1 and 2 of their Transactions.

From the Royal Bavarian Academy of Sciences, dated Nov. 6, 1853, acknowledging the receipt of the Proceedings, Vol. 5, Nos. 9—12, Vol. 6, Nos. 1 and 2, and of the Journal, new series, Vol. 2, Part 2; also transmitting their Bulletin and Transactions.

From Prof. Baird, dated Washington, Nov. 26, 1853, transmitting the collection of Serpents and Crawfishes acknowledged this evening.

From Mr. Charles Gillman of Brunswick, Maine, dated Nov. 29, 1853, in relation to obtaining a specimen of Moose (Cervus alces) for the Museum, an opportunity of which was now offered him. Referred to the Curators.

Dr. Le Conte presented a paper intended for publication in the Proceedings, entitled "Descriptions of new Coleoptera, from Texas, chiefly collected by the U. S. Boundary Expedition." Referred to Dr. Leidy, Dr. Hays and Dr. Hallowell.

Dr. Leidy presented a paper for publication in the Journal, entitled "On Bathygnathus borealis, an extinct Saurian from the new Red Sandstone of Prince Edward's Island." Referred to Mr. Lea, Dr. Ruschenberger and Dr. Coates.

On leave granted, Mr. Foulke offered a Resolution, instructing the Curators to enquire into the expediency of keeping the Museum open on more than two days in the week, and of granting the privilege of giving tickets of admission to subscribers to a fund for meeting the expenses of so doing.

December 13th.

MR. ORD, President, in the Chair.

A letter was read from the Hon. J. K. Kane, dated Philada., Dec. 11, 1853, transmitting a copy of Dr. Kane's new work on the Grinnell Arctic Expedition.

Mr. Lea called the attention of the members to the specimen of Gneiss bored by Pholas dactylus, and containing the shell. The specimen is from the coast of France, and was procured by M. Cuyot, who had first noticed the fact of Gneiss Rock being bored by this animal. The specimen proves that the boring action must have been of a mechanical character and not chemical, as had been supposed by Deshayes. M. Cuyot was satisfied that it resulted from the animal twisting itself around in the rock.

December 20th.

The President, MR. ORD, in the Chair.

Mr. Conrad presented a paper for publication in the Journal, entitled "Monograph of the genus Argonauta, with descriptions of five new species," which was referred to Mr. Phillips, Dr. Leidy, and Dr. Le Conte.

Mr. Conrad also presented two other papers for publication in the Proceedings, entitled "Synopsis of the genus Cassidula, and description of a proposed new genus, Athleta," and "Omissions and corrections to a Synopsis of the North American Naiades," both of which were referred to the Committee on the first paper.

Mr. Cassin presented a paper entitled "Synopsis of the Falconidæ which inhabit America north of Mexico, and descriptions of new species." Referred to Dr. Wilson, Mr. Ord and Col. McCall.

A note was read from Mrs. C. M. Gambel, accompanying the Journal of her late husband, Dr. Wm. Gambel, of an overland expedition to California in 1849, and giving permission to the Academy to examine and make selections from the manuscript. Referred to the Curators.

December 27th.

Vice-President BRIDGES in the Chair.

The Committee on Dr. Le Conte's "Descriptions of new Coleoptera from Texas, chiefly collected by the U. S. Boundary Commission," reported in favor of publication in the Proceedings.

Descriptions of some new Coleoptera from Texas, chiefly collected by the Mexican Boundary Commission.

Most of the new species described in the following pages, were collected by Mr. Arthur Schott, of the Mexican Boundary Commission under Major Emory; they were procured in the vicinity of Eagle Pass, on the lower portion of the Rio Grande. With them were several other species, belonging to genera of less interest, and which are here omitted, because numerous species from other parts of the country yet remain to be described. Those herein contained belong to groups which are particularly interesting, or which have been made the subject of special essays. In the genus Ophryastes, I have added descriptions of several contained in my collection from Missouri and California, and added new descriptions of the two species already described by Say and Schönherr, so that the student who may have occasion to refer to the genus, may find in a small space, the distinctive characters of all the species yet known within our territory.

To indicate the importance of accurate collections in distant parts of the country, I may add that, while the collection contained about 110 species of Coleoptera, 40 were new to our fauna. A much greater portion would have been added, had not the very active researches of Lieut. H. Haldeman already discovered a large number of those not included in the forty above mentioned.

Besides the species below described, I have added in the Revision of the Elateridæ of the United States, just published in the 10th volume of the Transactions of the American Philosophical Society, descriptions of two very large species of Agryppus, a genus not before fully enrolled in our fauna.

CICINDELA Linn.

Among the species belonging to our fauna must be placed C. curvata Chevr., and C. decostigma Chevr. (Col. Mex. fasc. 2d,) Mexican species which have been found in Texas. The former was collected by the Commission, the latter by Lieut. Haldeman.

C. vulturina, supra sericeo-nigra, capite thoraceque virescentibus, labro albo, medio producto, 3-dentato, thorace paulo convexo, postice angustiore, lateribus late rotundatis breviter albo-pilosis, antice posticeque profundissime impresso, tenuiter canaliculato, elytris thorace sesqui latioribus minus convexis, apice late rotundatis non serratis, margine tenui cyanescente, versus basin vage punctatis; subtus purpureo-cyanea; fronte plana, utrinque subtiliter rugosa, glabra. Long. ·63–·71.

Eagle Pass. The first joint of the labial palpi of the male is testaceous. This species seems to be most commonly without white marks on the elytra; the color in one specimen is greenish black, in the others it is pure black, at least on the elytra. One specimen has a faint rudiment of an apical lunule; in another the lunule is narrow and divided, and the humerus has a distinct round white spot; in a third there is no humeral spot, but there is a narrow transverse line about the middle, and one-third way from the margin to the suture; a small spot below and inside of this is obsoletely connected with it; the line joining these spots, and which represents the medial band of the elytra, makes an angle of about 45° with the suture. This species is very closely allied to C. obsoleta *Say*, and differs from it principally by the thorax being more convex and distinctly rounded on the sides.

TOSTEGOPTERA Blanch.

1. T. ventricosa, atra convexa (glabra?) thorace lateribus rotundatis serratis medio subangulatis confertim grosse punctato, callo pone medium dorsali lævi, disco antice vix obsolete impresso, elytris subsulcatis, confertim minus profunde punctatis, punctis granulo elevato munitis, costis fere lævibus. Long. ·9, lat. ·57.

Two females. This species is very different from S. cribosa *Lec.* (Proc. Acad. Nat. Sc. 6, 23), by the punctures of the thorax being smaller and more regular, and by the absence of the distinct flattened surface before the middle; the elytra are also more distinctly sulcate. I am inclined to believe that these species are in reality furnished with hairs or scales when living, and that the little granule observed in each of the large punctures of the elytra is the attachment of such scales. The fine scattered punctures of the under surface are furnished with short hairs, but those of the upper surface are entirely glabrous.

2. T. æqualis, atra, convexa, thorace lateribus rotundatis vix serratis medio subangulatis, sat dense minus grosse punctato, pilis albidis conspersa elytris æqualiter sat grosse punctatis, lineis duabus sub-lævibus vix distinctis sutura elevata punctis paucis notata. Long. ·8, lat. ·45.

One female. Easily distinguished by the absence of any distinct grooves and the smaller punctures of the elytra. The punctures of the thorax still retain some elongated flattened white hairs, which may originally have been dense; the punctures of the elytra furnish excessively short, almost invisible white hairs.

I have adopted this genus, because it has been recently proposed, and because I have had no leisure yet to examine critically the group to which it belongs; still, after a comparison between the different species, and some of our common species of Phyllophaga *Harris*, (Ancylonycha *Blanch.*) I have failed to discover any reason why they should be separated.

A new species from Texas completes the connection, by possessing with the thick convex body of Tostegoptera, the exact sculpture of Phyllophaga quercina.

ERIRHIPIS Burm.

1. E. Kernii, nigra, subtus nitida, longe pallide pilosa, supra subnitida, antennis rufescentibus, clypeo tenuiter marginato, vix emarginato, thorace latitudine breviore, lateribus rotundatis basique luteis, disco punctato, breviter piloso, linea dorsali sublævi subelevata, calloque utrinque vix distincto, elytris plus minusve flavo variegatis, sutura costisque duabus elevatis, interstitiis strigosis et punctatis. Long. ·39—·54.

Euphoria cernii Haldeman, Stansbury's Exped. to Salt Lake. 374, tab. 9, fig 10.

Large numbers of this species have been collected by Lieut. Haldeman in Texas, and by the Boundary Commission at Eagle Pass; the original specimen was obtained by the late Mr. R. Kern near Santa Fe.

The male has the club of the antennæ as long as the remaining portion, and the anterior tibiæ armed with two moderate teeth, the third or upper tooth being hardly visible.

In the female the club of the antennæ is shorter than the rest; the anterior tibiæ are armed with three teeth, of which the two inferior are longer than in the male.

In most specimens the elytra are yellow, with the suture, and some spots especially near the suture, black; the black spots gradually enlarge until the elytra

become entirely black; at the same time the yellow at the sides and base of the thorax becomes reduced and gradually disappears.

2. E. Clarkii, rufa, nitida, subtus longe pallide pilosa, clypeo nigro tenuiter marginato, antice subemarginato, thorace latitudine breviore, lateribus rotundatis, disco utrinque vitta abbreviata punctoque laterali nigris, punctato, linea dorsali calloque utrinque paulo elevatis lævibus, (breviter piloso ?) elytris sutura costisque duabus elevatis, interstitiis punctatis et strigosis, rufo-luteis sutura maculisque pluribus nigris, scutello, pectore, genubus tarsisque nigris, illo gutta rufa ornato. Long. ·42—·5.

Several females collected by Messrs. Clark and Schott. This species seems very closely related to the preceding, but the pale color on the thorax extends also along the middle, and the abdomen and feet are rufous; the antennæ and anterior tibiæ are precisely as in E. Kernii.

3. E. Schottii, nigra, subtus nitida, longe pallide pilosa, supra opaca, clypeo antice truncato, fortius marginato, lateribus tenuiter marginato, vertice piloso subcarinato, thorace latitudine non breviore, lateribus vix rotundatis, basi media late emarginata rufescente, disco parce punctato, breviter pubescente, elytris striolis obscure luteis transversis plus minusve variegatis, sutura costisque duabus elevatis, interstitiis bistriatis vage punctatis. Long. ·45—·55.

Several specimens collected at Eagle Pass by Mr. Schott, to whom I take great pleasure in dedicating this species. The club of the antennæ in the male is very long, and the anterior tibiæ have two short teeth at the apex; in the female the club of the antennæ is shorter than the remainder, and the anterior tibiæ are tridentate; the inferior tooth is not, however, elongated as in the two preceding species. It belongs to the same division of the genus as E. inda, but the hair on the thorax is not long as in that species. The yellow markings of the elytra are sometimes very abundant and confluent, at other times they are hardly visible; besides the little yellowish red line of the middle of the thorax at the base, a vitta each side of the middle abbreviated at each end can sometimes be seen; the angle each side of the medial emargination is very distinct, while in the two species above described the emargination hardly exists, and the base is almost uniformly broadly rounded.

The beautiful Dendrobias 4-maculatus *Dupont*(Mag. Zool. 1836.) and Tylosis oculatus *Lec.* (Journ. Acad. Nat. Sc., 2d ser. 2, 9) have been added to our fauna. Both have been previously known from Mexico. A remarkable variety of Tragidion coquus was also found, in which the yellow spots of the elytra are very small and hardly visible.

STENASPIS Dup.

With this genus must be united Smileceras *Lec.*, founded upon Cerambyx solitarius *Say*. The female of this rare species was procured by the Expedition, and differs from the male in having the antennæ two-thirds the length of the body. The 11th joint is not longer than the 10th, and is distinctly transversely impressed; the joints from the fourth, outwards, have the external edge compressed; the third also has a compressed edge beyond the middle.

S. splendens, nigra, thorace latitudine plus sesqui breviore, subinæquali, irregulariter modice punctato, plagis lævibus relictis, postice constricto lateribus dilatato tubercula laterali obtuso, elytris viridi-æneis nitidis subparallelis rugis profundis parcis intricatis, interstitiis elevatis convexis, parce punctulatis, femoribus læte aurantiacis basi apiceque nigris, antennis nigris extrorsum rufescentibus. Long. 1·37.

Texas, and from Dr. Berlandiere's collection. This species must evidently be referred to the present genus, although the prosternum is much less prominent between the coxæ than in the other species, and the lateral tubercle of the thorax is not very distinct. The anterior lateral tubercle observed in S. solitaria is entirely wanting, the sides being almost regularly rounded; the posterior constriction is very deep, and the base is more sinuate than in the other species. The head is precisely as in the preceding. The antennæ are black, with the joints growing brownish red from the fourth, outwards; the articulations are

black. The tibiæ are black, pubescent with yellow hair. The very deep and angular confluent rugosities of the elytra and their shining golden green color will readily distinguish this species.

MANNOPHORUS.

Mesosternum simplex, haud protuberans; mandibulæ subacutæ; palpi breves, subæquales, articulo ultimo subcylindrico longiore; thorax rotundatus, non armatus ad apicem transversim constrictus et margine prominulo munitus, basi marginatus; elytra costa eburnea ornata, mutica; pedes tenues, femora mutica non clavata, tarsi postici articulo 1mo paulo elongato; antennæ 11-articulatæ tenues elongatæ, maris articulo ultimo fere diviso.

This genus belongs to the Elaphidion group, but is sufficiently distinct from all the others of that group found in our territory. It will probably fall eventually into some of those invented by Mr. Serville, but from the very artificial nature of the arrangement made by him, it is impossible to determine where it may be found.

It differs from Elaphidion by the less dilated palpi, as well as by the 11th joint of the antennæ of the male being somewhat divided as in Eburia and Purpuricenus, approaching most nearly to the latter, but differing from both by the more cylindrical palpi and by the very curious acute collar which surrounds the apex of the thorax, and which projects very conspicuously at the sides. In the form of body it resembles closely Crossidius testaceus *Lec.*, and I was at first inclined to refer it to that genus. The mandibles, however, are not at all bifid, and the body, though slightly pubescent, is much less hairy than in Crossidius.

M. lætus, niger, subtus parce pubescens, capite thoraceque confertim grosse punctatis, hoc rotundato, transverso, læte coccineo, basi apiceque nigro-marginato, disco utrinque paulo elevato, elytris dense punctatis, vittis utrinque duabus angustis flavis, (quarum interior lævigata et elevata,) postice abbreviatis, apice subtruncata. Long. ·5—.6.

Several specimens. The antennæ of the male are longer, those of the female shorter than the body. The thorax has a faint rudiment of a dorsal line near the base. The inner vitta of the elytra is one fourth from the suture, the outer one is near the margin; they are both abbreviated about one seventh from the tip. Varieties occur with the vittæ shorter, and with a black dorsal spot on the thorax near the base.

ELAPHIDION Serv.

1. E. moestum, modice robustum, piceum, subnitidum tenuiter cinereo-pubescens, thorace latitudine vix breviore, confertim punctato, lateribus paulo rotundatis, elytris grossius modice punctatis, punctis postice minoribus, apice truncatis, antennis femoribusque muticis. Long. ·45—·56.

Specimens procured by the expedition at Eagle Pass, and by Dr. Berlandiere in Northern Mexico. Related to E. pubescens, but the punctures of the elytra are larger, the color is darker, and the pubescence shorter and more sparse. The thorax of the female is coarsely, that of the male finely punctured.

2. E. spurcum, modice elongatum, piceum, parce cinereo-pubescens, pilisque sordide albis irregulariter maculatum, thorace latitudine vix longiore confertim punctato, lateribus rotundatis, elytris sat grosse modice punctatis, punctis postice subtilioribus, apice truncatis, femoribus muticis, antennis articulis 3 et 4 apice spina brevissima armatis. Long. ·45.

One specimen. In form and size is very similar to E. neglectum, but the thorax has no callosities, and the elytra are slightly truncate and entirely unarmed at the apex. The affinities of this species seem to be with E. muticum *Newm.*, but it is much smaller.

3. E. debile, elongatum, parce cinereo-pubescens, pilisque sordidis irregulariter conspersum, thorace dense punctato, latitudine paulo longiore, lateribus late rotundatis, linea dorsali fere integra lævi, elytris sat grosse modice puncta-

tis, punctis postis subtilioribus, apice subtruncatis, spina minuta suturali armatis, femoribus muticis, antennis articulis 3—5 spina apicali minuta armatis. Long. ·56.

Texas and Northern Mexico. Lieut. Haldeman and Dr. Berlandiere. This species resembles in appearance E. villosum, but the glabrous line of the thorax and the absence of the long apical spines of the elytra will at once distinguish it; the spots of yellowish hair on the thorax are inclined to form four vittæ.

The scutellum in the species here described is densely pubescent, but as this seems to be a character in all the species of the genus, I have not mentioned it in the individual descriptions.

OPHRYASTES Sch.

A. Thorax lateribus tuberculato-dilatatis, postice subito valde angustatus.

1. O. latirostris, niger, dense albido-squamosus, rostro crasso, basi impresso trisulcato, sulcis lateralibus divergentibus, obliquis, profundis, thorace valde transverso, inæquali, grosse parce profundissime punctato, lateribus bituberosis, elytris thorace paulo latioribus, ovalibus, fusco subvariegatis, striis profundis punctatis, interstitiis valde convexis. Long. ·5.

One specimen found on the Arkansas River, near the mountains. This species differs from all the following by the obliquity of the lateral grooves of the rostrum, which is also thicker than in the other species.

2. O. ligatus, niger, dense sordide albo-squamosus, rostro basi impresso, trisulcato, sulcis lateralibus brevibus obliquis profundis, thorace inæquali, latitudine fere duplo breviore, lateribus dilatatis ad medium subangulatis, parce profundissime punctato, profunde canaliculato, elytris thorace paulo latioribus, striis tenuibus vage punctatis, interstitiis paulo convexis, 2,4 et 6to irregulariter fusco-nigris. Long. ·38.

One specimen, Nebraska. This species most resembles O. sulcirostris, but the obliquity of the lateral grooves of the rostrum and the difference of the color will distinguish it. The thorax is more deeply channelled, and is less constricted posteriorly.

3. O. sulcirostris, niger, dense albido-squamosus, fusco subvariegatus, rostro basi impresso, trisulcato, sulcis lateralibus brevibus modice profundis, thorace latitudine duplo breviore, canaliculato inæquali, rugoso et grosse parce profundissime punctato, lateribus valde dilatatis, postice subangulatis, elytris thorace paulo latioribus tenuiter striatis striis grosse minus profunde punctatis, interstitiis modice convexis. Long. ·34.

Schönherr, Curc. 1, 509 (1833;) 5, 819.

Liparus sulcirostris Say, Journ. Acad. Nat. Sc. 3, 316.

One specimen found on the Arkansas River, near the mountains. The thorax is gradually dilated from the anterior constriction to the widest portion, while in O. latirostris it is suddenly dilated behind the anterior constriction, and then sinuate, so as to form two lateral prominences, of which the posterior one is larger and less rounded.

4. O. tuberosus, niger, albido-squamosus, rostro trisulcato, sulcis lateralibus rectis profundis, thorace latitudine plus duplo breviore valde inæquali grosse profunde punctato, lateribus bituberosis, elytris thorace non latioribus striis vix impressis grosse profunde punctatis, interstitiis 2, 4 et 6to atris. Long. ·41.

One specimen, Santa Fé, New Mexico, collected by Mr. Fendler. This species differs from the three preceding, by the rostrum not being transversely impressed at the base, and from the next by the lateral grooves of the rostrum extending between the eyes, by the middle groove being less deep, and by the lateral dilatations of the thorax being much more prominent, as well as by the difference in the arrangement of the dark vittæ of the elytra, and the deeper punctures of the striæ. The scales of the thorax have been removed, in great part, so that I do not know if the color was variegated on that part of the body.

5. O. vittatus, niger, albido-squamosus, rostro trisulcato, sulco medio

profundissimo, lateralibus rectis profundis, mox ante oculos abbreviatis, thorace latitudine plus duplo breviore inæquali, parce profunde punctato, lateribus subbituberosis, canaliculato sæpe fusco trivittato, elytris striis vix impressis profunde punctatis, sutura cuprascente, fusca-interstitiis 3, 5 et 7mo fusco-vittatis. Long. ·41—·48.

Schönherr, Curc. 1, 509; 5, 819.

Liparus vittatus Say, Journ. Acad. Nat. Sc. 3, 316.

Platte and Arkansas Rivers; not rare; found also by the Commission at Eagle Pass. The elytra of the male are but little wider than the thorax, those of the female are more rounded, a little flattened on the back, and about one half wider than the thorax; the dark vittæ of the thorax and elytra appear to be produced, in part, by abrasion, as specimens occur in which they are hardly to be seen. The suture, as far as the first stria, is covered with brown scales, having a slight coppery reflexion.

B. Thorax lateribus late regulariter rotundatis.

6. O. speciosus, niger supra cupreo-fusco-squamosus, capite albo-squamoso vitta frontali alteraque pone oculos utrinque fuscis, rostro 5-sulcato, sulcis intermediis brevibus haud profundis, thorace latitudine breviore lateribus rotundato parce subtiliter punctato, subtiliter canaliculato, vitta utrinque dorsali alteraque in latere niveis, elytris elongato-ellipticis striis profundis punctatis, interstitiis vix convexis, parce punctulatis, 2, 4, 7mo niveis, lateribus et subtus albo-squamosus. Long. ·8.

Eagle Pass, several specimens. This fine species is certainly the most beautiful of this family yet found in the United States: the lateral grooves of the rostrum are situated in the side and converge a little posteriorly; the intermediate grooves occupy the position of the lateral grooves in the species of division (A.) and are very short, not by any means obvious; the vittæ of the thorax are made up of spots placed close together and separated by narrow lines; two or three small spots are scattered between the dorsal vitta and the lateral one; the anterior and posterior constriction, with their rows of punctures are as in the species of the first division, but are hardly apparent in the lateral outline of the thorax, which is regularly curved, only a little indented at base and apex; the elytra of the male are about one-fourth, those of the female about one-third wider than the thorax; the snowy white vittæ are a little irregular in their outline, the elytra beyond the 7th stria are covered with grayish white scales, similar to those of the under surface, and contrasting with the snowy whiteness of the vittæ; the legs are speckled with dark fuscous, but the usual femoral band is not seen.

7. O. argentatus, niger, æqualiter argenteo-albo-squamosus, vix variegatus, rostro basi impresso, trisulcato, sulcis angustis profundis, lateralibus postice paulo incurvis, thorace latitudine paulo breviore, inæquali canaliculato, profunde grosse punctato, lateribus late rotundatis, elytris ovalibus, striis vix impressis punctatis, interstitiis paulo convexis. Long. ·69.

One female, with the elytra nearly twice as wide as the thorax, found at Vallecitas, California; the anterior and posterior marginal impressions of the thorax are entire and very distinct, uniting with the dorsal line; the color is more uniform than in the other species, nevertheless the elytra are slightly mottled; an occipital line, the sides of the rostrum, and a space behind the eyes are covered with fuscous metallic scales; the dark band of the femora existing in many of the species is more conspicuous in this, on account of the denser white scales of the legs.

8. O. varius, niger, albo-squamosus, capite fusco variegato, rostro bisulcato, basi impresso, versus apicem medio foveato, thorace latitudine non breviore, subinæquali, subcanaliculo, grosse parce punctato, fusco trivittato, lateribus late rotundatis, elytris striis tenuibus minus profunde at grosse punctatis, interstitiis non convexis, 3io 5toque plus minusve fuscis. Long. ·35—·44.

Desert of the Colorado, California; chiefly on Larrea Mexicana. The elytra of the male are not wider, those of the female are twice as wide as the thorax.

This species is remarkably different from all those above described by the medial groove of the rostrum being obsolete, except towards the tip, where it appears as an oblong fovea; the lateral grooves are not deep, and end at the transverse impression at the base of the rostrum. Over the body and legs the white scales are intermixed with pale fuscous, giving a dullness to the color; the fuscous stripes of the elytra are very variable, sometimes they are well defined; in other specimens they are confused by fuscous spots on the adjoining interstitial spaces; the dark fascia of the femora is moderately distinct.

9. O. sordidus, niger, griseo-fuscoque squamosus, rostro trisulcato, sulcis profundis, lateralibus rectis brevibus, thorace latitudine sesqui breviore, antice subangustato, lateribus late rotundatis parce punctato, subcanaliculato, elytris convexis thorace latioribus, striis vix impressis punctatis, interstitiis planis. Long. ·37.

One female specimen, Platte River. The posterior marginal impression of the thorax is indistinct; the anterior one is entire, broad but not deep; the brown and gray scales are intermixed and do not form any well defined spaces; the latter color predominates on the head, and the former on the elytra.

10. O. decipiens, piceus (dense?) griseo-squamosus (elytris fusco variegatis?) rostro sulco medio minus profundo antice lato, lateralibus brevibus indistinctis, thorace latitudine non breviore, lateribus antice posticeque paulo rotundatis, asperse profunde punctato, canaliculato, elytris convexis, thorace paulo latioribus, striis modice impressis profunde punctatis, interstitiis paulo convexis. Long. ·3.

One male found by the Commission at Eagle Pass. The scales are unfortunately removed in great part, but the elytra at the apex show some appearance of having been variegated with darker marks. Beneath, the body is uniformly and densely covered with grayish scales. The sides of the thorax are nearly straight at the middle, narrowed and rounded slightly at each end; the transverse marginal impressions are visible only in the sides. The rostrum is more flattened above than in any other species, and the middle groove is very indistinct, and so dilated anteriorly that the surface becomes broadly concave; the lateral grooves are very short and not deep. The appearance is very similar to Epicærus, but the ciliate thoracic postocular lobes require it to be placed in this genus.

* Although but two new species of this interesting genus were procured by the Boundary Commission, I have thought that a short account of all the species known to me, would be useful.

PELECYPHORUS Sol.

P. elatus, niger, capite profunde impresso, thorace latitudine paulo breviore, lateribus antice latissime reflexis medio angulatis, angulis anticis et posticis distinctis, elytris oblongo-ovalibus, postice acutiusculis, convexis, thorace plus duplo latioribus punctis rugosis minus profundis impressis, lineis tribus suturaque levibus, epipleuris subito inflexis, humeris minutis porrectis. Long. 1·3.

A large species, remarkable for the form of the thorax, which is tolerably regularly hexagonal, with all the angles well defined; the sides are very strongly reflexed anteriorly, but become gradually narrower from the lateral angle to the base. This species agrees with P. confluens *Lec.* and the next species, as well as with all the others referred by me to the genus, except Asida anastomosis, in having elongate palpi with the last joint strongly securiform, and a large lateral opening between the mentum and the base of the mandibles. The species referred by me to Euschides (Stenomorpha *Solier*,) have the same form of mouth, but appear to have the last joint of the palpi broader and more regularly triangular. I am doubtful about the generic value of that character, but at present all is confusion in regard to genera of Tenebrionidæ: the prosternum is longitudinally deeply concave between the anterior coxæ, and is not produced posteriorly; the sides of the elytra are not margined, although the epipleuræ are suddenly inflexed.

P. sordidus, piceo-niger, capite modice impresso, punctato, thorace latitudine fere sesqui breviore, ante medium angustato, lateribus rotundatis subserratis, deplanatis, subreflexis, confertim grosse inæqualiter punctato, elytris oblongo-

ovalibus, convexis postice subacutis, sutura, margine, costisque utrinque duabus elevatis lineis transversis sinuatis inter se irregulariter convexis. Long. ·75—·85.

Arkansas River, near the mountains. The female has the elytra twice as wide as the thorax, and more rounded on the sides than in the other sex. The antepectus is sulcate between the coxæ, but the groove is narrower than in the preceding species. The specimens are covered with an earthy matter, which adheres very strongly.

Another species was found by the Commission, of which only the elytra are preserved ; they are obovate, dilated gradually for three-fourths of their length somewhat flattened anteriorly, very declivous, and subacute posteriorly, truncate at base with a well defined margin ; lateral margin acute, extending within one-fifth of the apex ; the disc is sparsely punctured, and each elytron is marked with three faint elevated ridges obsolete at both ends, and of which the external one is the most distinct. The sculpture of the under surface and the proportions of the legs are exactly those of P. sordidus, which it will probably resemble in the form of the thorax. As the characters drawn from the form and sculpture of the elytra are very distinct in this genus, I venture to name this species P. subcostatus.

MICROSCHATIA Sol.

M. contorta, sordide fusca, longiuscula, capite profunde excavato, thorace hexagonali, latitudine vix breviore, angulis lateralibus apice rotundatis, lateribus postice paulo emarginatis, disco canaliculato, inæquali, elytris postice dilatatis, lateribus serrato-tuberculatis, costa discoidali alte tuberculata irregulariter fracta, cum sutura elevata lineis transversis connexa ornatis. Long. ·37.

From the collection of the late Dr. Berlandiere ; this very ugly insect bears a certain analogy to Asida anastomosis *Say*, in appearance, but is very distinct by the hexagonal thorax, and more rough elytra ; the discoidal costa ends about one-fourth from the apex in a high tubercle ; the marginal series of tubercles ends by bending inwards to the suture about one-sixth from the apex.

The maxillary palpi are small, and can be almost entirely concealed behind the mentum, which not only fills up the progenial cavity, but abuts against the mandibles, entirely covering the mouth beneath ; this is also the case in Asida anastomosis, and in the two species of Microschatia described by me (Ann. Lyc. 5, 129,) which are properly congeneric with that species ; it remains still to be determined whether they should enter Solier's genus, of which only one species was known to the inventor.

The present species differs from all the others mentioned in having the third joint of the antennæ not longer than the fourth ; the prosternum is broadly produced posteriorly, as in M. inæqualis.

Asida anastomosis, incorrectly referred by me to Pelecyphorus, has the prosternum regularly rounded and not produced posteriorly.

TRIOROPHUS Lec.

T. nodiceps, ater, minus nitidus, capite subtilius postice densius punctato, lateribus margine tenui reflexo, fronte tuberculo magno obtuso ornata, thorace transverso punctato, basi marginato, lateribus rotundato, angulis anticis porrectis, elytris ventricosis rotundatis thorace plus duplo latioribus, 9-seriatim punctatis. Long. ·33.

One specimen : Eagle Pass. Differs from the three species described by me (Ann. Lyc. 5, 141) in the less punctured head, the much larger frontal tubercle and by the wider and more inflated elytra.

EMBAPHION Say.

1. E. concavum, elongato-ellipticum, nigrum, thoracis et elytrorum lateribus altissime reflexis, illo antrorsum angustato disco parce punctulato, lateribus parcius subtilius muricatis, elytris subtiliter muricato-punctatis, brevissime hispidis. Long. ·78, lat. ·4.

One specimen. Resembles E. muricatum *Say*, but is longer and narrower, with the broad margin of the elytra more suddenly reflexed and almost perpendicular. Although so different in form, this genus is only distinguished from Eleodes by the inferior plane of the mentum being more rounded and more deeply impressed; its anterior margin is slightly incised; the lateral angles are so much inflexed as to be invisible; the tarsi are sulcate beneath, and fringed at the apex and sides with short spines; the middle joints of the posterior tarsi appear more elongated than in Eleodes. I have great doubt of the generic value of any of these differences, and several nondescript species from New Mexico seem to be intermediate, both by the form of the body and by the differences in the mentum.

LYTTA Linn.

1. L. fulvipennis *Lec.*, Proc. Acad. Nat. Sc. 6, 33, though smaller, does not appear sufficiently different from L. cardinalis *Chev.*, Col. Mex. cent. 1.

2. L. cribrata, atra, capite thoraceque nitidis, punctis paucis impressis, illo macula frontali magna sanguinea, hoc lateribus sanguineis, rotundato, disco bifoveato, vix canaliculato, elytris opacis lineis elevatis irregulariter reticulatis, thorace fere duplo latioribus. Long. ·77.

One specimen. This species having the joints of the antennæ oval, and the labrum slightly emarginate, and the outer spur of the posterior tibiæ obtuse, belongs to division A—c of my essay on this genus, (Proc. Acad. 6, 331;) the outer joints of the antennæ are hardly thicker than those near the base; they extend to about the anterior third of the elytra. L. reticulata *Say* (Journ. Acad. Nat. Sc. 3, 305) must resemble this species, but is said to be entirely black, tinged slightly with green. The antennæ are said to be thickened towards the tip, and the punctures of the thorax confluent posteriorly.

3. L. morio, atra immaculata, confertim subtiliter punctata, brevissime pubescens, thorace latitudine paulo breviore, subcanaliculato, angulis anticis rotundatis, labro vix emarginato, tibiis posticis calcare externo paulo latiore. Long. ·4—·53.

This species resembles L. pensylvanica, but is larger and more robust, and the thorax is wider; in form it precisely resembles L. fissilabris *Lec.*, but the labrum is very slightly emarginate, and the spurs of the posterior tibiæ are not equal. The head, as in L. pensylvanica, has a fine glabrous, longitudinal line.

4. L. sublineata, elongata, nigra subtiliter dense punctulata, dense luteo-griseo pubescens, thorace capite sesqui angustiore, latitudine paulo longiore, lateribus parallelis antice rotundatis, disco late canaliculato, macula utrinque denudata ad medium ornato, elytris minus dense pubescentibus, sutura, margine, apice vittaque lata postice abbreviata densius griseo pubescentibus, lineis tribus tenuissimis denudatis atris, tarsis palpis antennisque nigris, his articulo 2ndo 3io paulo breviore. Long. 1·05.

One female, with the first joint of the antennæ extending to the posterior margin of the eyes. This fine species resembles L. immaculata and longicollis, but the thorax is less convex, and the unequal distribution of the pubescence will distinguish it. The posterior tibiæ appear black, but I do not think that this will be found to be a constant character.

5. L. fulvescens, nigra elongata dense subtiliter pubescens, densissime luteo-fulvo-pubescens, thorace capite paulo angustiore, latitudine longiore, lateribus parallelis antice rotundatis, canaliculato, elytris thorace paulo latioribus immaculatis, antennis tarsisque nigris, illis articulo 2do 3io fere æquali, palpis testaceis, apice nigris. Long. ·59—·68.

Several specimens; found also by Lieut. H. Haldeman in Texas. Resembles L. longicollis, but is smaller and without any denuded humeral spot. By the color of the palpi it also differs from all the allied species. The first joint of the antennæ extends a little beyond the posterior margin of the eyes in the male; in the female it is a little shorter.

L. ferruginea *Say*, L. conspersa *Lec.* and L. immaculata *Say*, besides L. mylabrina *Cheer.* and L. convexa *Lec.*, already known from that region, are also contained in the collection.

The Committee on Dr. Leidy's paper on "Bathygnathus borealis, an extinct Saurian of the new Red Sandstone of Prince Edwards Island," reported in favor of publication in the Journal.

The Committee on a paper by Mr. Conrad, "Monograph of the genus Argonauta, with descriptions of five new species," reported in favor of publication in the Journal.

The Committee on the two following papers by Mr. Conrad, reported in favor of publication in the Proceedings.

Synopsis of the Genera CASSIDULA, *Humph.*, *and of a proposed new genus* ATHLETA.

By T. A. CONRAD.

CASSIDULA, *Humph.*, MELONGENA, *Schum.*

The genus CASSIDULA was founded by Humphreys on *Buccinum calcaratum* (Solander,) who included *Murex melongena*, Lin. and a Florida shell which he terms *M. cornuta*, and cites *Buccinum trames*, Solander. This may be *Murex corona*, Gmel.

I know of but one fossil species of this genus, if indeed it really belongs to it, in the Eocene formation. I propose it at present as the type of a subgenus, to which I can refer no other species.

Subgenus LACINIA, *Con.*

Globose; pillar lip widely reflected, callous; basal emargination profound; base dilated.

I have given a name to this subgenus which Humphreys applied to some unknown shell without describing it.

Fossil species, (Eocene.)

C. (Lacinia) ALVEATA.

Melongena alveata, Silliman's Journ. Jan. 1833, xxiii, p. 344: Con. Tert. Foss. p. 37, pl. 15, fig. 2.

Pyrula Smithii, LEA. Cont. to Geol. p. 153; pl. 5, fig. 162. Dec. 1833.

Locality. Claiborne, Alab.

Miocene species.

C. LAINEI,

Pyrula Lanei, BAST. GRATELOUP. Conch. Foss. des Terr. Tert. Pl. 1, fig. 2, 3, 8.

C. STROMBOIDES. *Pyrula stromboides*, BAST. GRAT. ib. 2, 3.

Recent Species.

C. HIPPOCASTANUM.

Murex hippocastanum. Born. Mus. 1780, p. 309. Dillwyn. Cat. p. 710.

Buccinum calcaratum, SOLAND.

Cassidula calcarata, HUMPH. Cat. 1797, p. 32.

Murex calcaratus, DILLWYN. Cat. p. 710.

Pyrula galeodes, LAM. An. sans vert. (Desh. ed.) ix. p. 517. Reeve. Mon. Pyrula, No. 22.

Inhabits Island of Samar, Philippines.

C. MELONGENA.

Murex melongena, LIN. Martini. ii. p. 71. t. 39, fig. 389. Dillwyn, Cat. p. 710.

Pyrula melongena, LAM. An. sans Vert. ix. p. 509.

Inhabits the West Indies.

C. BISPINOSA,

Pyrula bispinosa, PHILIPPI, Abb. und Besch. Conch. Pyrula, pl. 1, fig. 7, 8. REEVE. Pyrula, No. 18.

Inhabits

C. PATULA.

Inhabits Bay of Caraccas (on mud banks,) Cuming.

C. CORONA.

Pyrula patula, BROD. and LOW. Zool. Journ. iv, p. 377. REEVE, PYRULA, No. 20.

Murex corona, GMEL.

Fusus corona, LAM. An. sans Vent. (ed. of Desh.) ix, p. 453.

Buccinum ornatum, SAY. Journ. A. N. S. ii, p. 229.

Melongena corona. Silliman's Journ. (new series) ii, p. 297.

Inhabits Florida.

C.? PARADISIACA.

Pyrum paradisiacum, MARTINI, iii, pl. 94, fig. 909, 910.

Pyrula nodosa, LAM. An. sans Vert. (ed. of Desh.) ix, p. 518.

Inhabits Ceylon, Mozambique, &c.

ATHLETA, *Con.*

Ovate, voluta-shaped; spire short, acute; columella with plaits as in VOLUTA. A callous projecting on the shoulder, and covering a portion of the spire.

A. RARISPINA.

Voluta rarispina, LAM. An. sans Vert. (Desh. ed.) x, p. 426. Enc. Method. pl. 384, fig 2.

Locality, Dax, in Miocene.

A. AFFINIS.

Voluta affinis, BRONG. Grateloup. Tert. Foss. pl. 1, fig. 16, 20. *V. rarispina*, *jun*, DESH.

A. TUOMEYI, *Con.*

Ovato-turbinate, with revolving lines distinct on the lower half and obsolete above on the body whorl; shoulder with distant prominent acute spines; between the spines and suture the side is flattened, swelling a little near the suture, and has a few revolving raised unequal lines; penultimate whorl concealed by the callous, above which the whorls are finely tuberculated and somewhat turrited; columella with 2 prominent plaits and 3 obsolete ones. Length 1¼ inch.

Locality. Bashia creek, Clarke co., Alab.

I have given Mr. Tuomey's name to this interesting shell which was originally referred by him to *V. Sayana* with doubt. Mr. Tuomey says the group of fossils in this locality are very distinct from those of Claiborne, and I have no doubt the deposit will prove to be an upper bed of the Eocene which may, when the fossils are all collected, be found to contain some of the species of the Older Miocene as it occurs at Vicksburg, Miss. The *Athleta Tuomeyi*, though a very distinct shell, is related to a Miocene fossil of Dax, (*A. rarispina*,) which is an abundant species. The genus appears to have no living representative.

Omissions and Corrections to the Synopsis of the North American Naiades.

By T. A. CONRAD.

U. perobliquus, *Conrad*. Monog. p. 51, pl. 27, fig. 2.
U. Rangianus, (female,) *Lea*. 1838, vi, 95, 18, 56.
U. Sageri, *Conrad*. Monog. p. 53, pl. 29, fig. 1.
Stroph. Etowaensis, instead of *Etowaensis*, see Proceed. A. N. S. vi. p. 263.
Monodontina Buschiana, *Conrad*. (Marg. Vondenbuschiana, Lea.) ib. p. 269.
U. pectitus belongs to Agassiz's proposed genus SCALENARIA.
U. Aberti . . . . CYPROGENIA.
U. fragosus, nobilis, apiculatus . . QUADRULA.

Note on Requienia? Sensoni.

I propose, in the uncertainty of the reference of this shell, to institut subgenus, under the name of ARIETINA.

Inequivalved; both valves deep, with involute beaks.

The Committee on Mr. Cassin's "Synopsis of the Falconidæ, &c.," reported in favor of publication in the Proceedings.

Synopsis of the Species of FALCONIDÆ *which inhabit America north of Mexico; with descriptions of new species.*

By JOHN CASSIN.

I. Subfamily FALCONINÆ.

1. Genus FALCO, Linn.

1. Falco anatum, Bonaparte. Comp. List., p. 4, (1838). Wilson. Am. Orn., ix. pl. 76. Aud. B. of Am., pl. 16.
Hab. Eastern North America, Cuba.

2. Falco nigriceps, Cassin. Birds of California and Texas, i. p. 87, ([illegible]).
Hab. Western North America, Chili.

3. Falco polyagrus, Cassin. Birds of California and Texas, i. p. 88, ([illegible].)
Hab. Oregon, California.

2. Genus HIEROFALCO, Cuvier.

1. Hierofalco sacer, (Forster.) Aud. B. of Am., pl. 196.
Falco sacer, Forster. Philos. Trans. London, LXII. p. 423, (1772.)
"Falco islandicus," Aud. Orn. Biog., ii., p. 552.
Hab. Northern regions, Greenland, Labrador.

3. Genus HYPOTRIORCHIS, Boie.

1. Hypotriorchis columbarius, (Linn.) Wilson. Am. Orn., ii., pl. 15, fig. 3. Aud. B. of Am., pl. 75, 92.
Falco columbarius, Linn. Syst. Nat., i., p. 128, (1766).
Hab. Throughout North America.

4. Genus TINNUNCULUS.

1. Tinnunculus sparverius, (Linn.)
Falco sparverius, Linn. Syst. Nat., i., p. 128, (1766).
Hab. The entire continent of America.

II. Subfamily ACCIPITRINÆ.

1. Genus ASTUR, Lacepede.

1. Astur atricapillus, (Wilson.) Wilson Am. Orn., vi., pl. 52, fig. 3. Aud. B. of Am., pl. 141.
Falco atricapillus, Wilson. Am. Orn., vi., p. 80, (1812).
Hab. Northern and Eastern North America.

2. Genus ACCIPITER, Brisson.

1. Accipiter Cooperii, (Bonaparte.) Bonap. Am. Orn., ii., pl. 1. Aud. B. of Am., pl. 36, 141.
Falco Cooperii, Bonap. Am. Orn. ii., p. 1, (1828).
Hab. Throughout North America.

2. Accipiter mexicanus, Swainson. Faun. Bor. Am. Birds, p. 45, (1831).
Hab. California, Mexico.

3. Accipiter fuscus, (Gmelin.) Wilson. Am. Orn., v., pl. 45, fig. 1. Aud. B. of Am., pl. 374.
Falco fuscus, Gm. Syst. Nat., i., p. 280, (1788).
Hab. Throughout North America.

III. Subfamily BUTEONINÆ.

1. Genus Buteo, Cuvier.

1. **Buteo borealis**, (Gmelin.) Wilson Am. Orn., vi., pl. 52. Aud. B. of Am. pl. 51.

Falco borealis, Gmelin. Syst. Nat., i., p. 266, (1788).

Hab. Eastern North America, Fur countries, Wisconsin, Florida, Cuba, Jamaica.

2. Buteo Swainsoni, Bonaparte. Comp. List, p. 3, (1838). Rich. and Sw. Fauna Boreali Americana, Birds, pl. 27. Aud. B. of Am., pl. 372.

"Buteo vulgaris." Rich. and Sw. and Aud.

Hab. Western North America, Oregon, California.

3. Buteo lineatus, (Gmelin.) Wilson. Am. Orn., pl. 53, fig. 3. Aud. B. of Am., pl. 56, 71.

Falco lineatus, Gmelin. Syst. Nat., i., p. 268, (1788).

Hab. Throughout North America.

4. Buteo Bairdii, Hoy. (New species.)

Size smaller than *B. lineatus*, wings long and pointed, with the third primary longest, second rather longer than the fifth, first about the same length as the sixth. Entire plumage of the upper parts dark brownish with a purplish lustre, especially obvious on the primaries. Plumage of the head and neck behind and some feathers on the back edged and tipped with yellowish white, upper tail coverts yellowish white with transverse bars of brown. Tail above dark ashy brown, with about ten bands of dark brown and tipped with white. Entire under parts and under wing coverts fine pale yellowish white with a few sagittate spots of brown on the sides, and a distinct stripe of brown running downwards from the corner of the mouth. Front at the base of the upper mandible white. Cere, legs and irides yellow.

Younger? Entire upper parts very dark brown or nearly black with purplish lustre, and entire under parts with almost every feather having a large longitudinal stripe or spot of the same, this color (brownish black) predominating on the breast, and on the throat assuming the form of narrow longitudinal stripes. Flanks and under wing coverts with rounded spots of white. Tibiæ dark brown with transverse bars and rounded and oval spots of pale reddish white. Upper tail coverts reddish white with their outer edges brown, and with transverse stripes of brown. Under tail coverts yellowish white with transverse stripes of brown. Stripes from the corners of the mouth wide and conspicuous. Front white, cheeks yellowish white. Sex unknown.

Dimensions.—Female. Total length 19¼ inches, wing 14, tail 8, extent of wings 48 inches, tail about an inch longer than the folded wings.

Hab. State of Wisconsin.

Obs.—Two specimens of this remarkable *Buteo* are now in the collection of the Academy, for which it is indebted to Mr. William Dudley, Secretary of the Wisconsin Natural History Association, and to P. R. Hoy, M. D., of Racine, Wisconsin. It bears a general resemblance to the European *B. vulgaris*, and also to *B. pennsylvanicus*, but is quite different from either and from any other species known to me.

Accompanying Dr. Hoy's specimen were some interesting notes of the manners of this species, with measurements of the recent bird. It is named by him in honor of our mutual and highly esteemed friend Professor Spencer F. Baird, of the Smithsonian Institution, one of the most eminent of American naturalists, and whose exertions have contributed in a most important manner to the development of the natural history of the United States.

5. Buteo pennsylvanicus, (Wilson.) Wilson. Am. Orn., vi., pl. 54, fig. 1. Aud. B. of Am., pl. 91.

Falco pennsylvanicus, Wilson. Am. Orn., vi., p. 92, (1812).

Hab. Eastern North America.

6. Buteo Harlani, (Aud.) Aud. B. of Am., pl. 86

Falco Harlani, Audubon. Orn. Biog., i., p. 441, (1831).

Hab. Louisiana, Mexico.

2. Genus Archibuteo, Brehm.

1. Archibuteo sancti-johannis, (Gmelin.) Wilson. Am. Orn., vi. pl. 53. Aud. B. of Am., pl. 422.
Falco sanctijohannis, Gm. Syst. Nat., i., p. 273, (1788).
Hab. Eastern North America.

2. Archibuteo lagopus, (Gmelin.) Wilson. Am. Orn., iii., pl. 33. Aud. B. of Am., pl. 166.
Falco lagopus, Gm. Syst. Nat., i., p. 260, (1788).
Hab. Throughout North America.

3. Archibuteo ferrugineus, (Lichtenstein.) Gray. Genera of Birds, i., pl. 6.
Falco ferrugineus, Licht. Trans. Berlin Acad., 1832, p. 429.
Hab. California.

IV. Subfamily MILVINÆ.

1. Genus Nauclerus, Vigors.

1. Nauclerus furcatus, (Linn.) Wilson. Am. Orn., vi., p. 51. Aud. B. of Am. pl. 72.
Falco furcatus, Linnæus. Syst. Nat., i., p. 129, (1766).
Hab. Southern and Central North America.

2. Genus Elanus, Savigny.

1. Elanus leucurus. (Vieillot.) Bonap. Am. Orn., ii., pl. 11. Aud. B. of Am. pl. 352.
Milvus leucurus, Vieill. Nouv. Dict. d'Hist. Nat., xx., p. 563, (1819).
Hab. Southern North America, California, South America.

3. Genus Ictinia, Vieill.

1. Ictinia mississippiensis, (Wilson.) Wilson. Am. Orn., iii., pl. 25, fig. 1. Aud. B. of Am., pl. 117.
Falco mississippiensis, Wilson. Am. Orn., iii., p. 80, (1811).
Hab. Southern North America.

4. Genus Rostrhamus, Lesson.

1. Rostrhamus sociabilis, (Vieillot.) Spix. Av. Bras., i., pl. 2.
Herpetotheres sociabilis, Vieill. Ency. Meth., i., p. 1248, (1823).
Hab. Florida, South America.

5. Genus Circus, Lacepede.

1. Circus hudsonius, (Linn.) Wilson Am. Orn., vi., pl. 51, fig. 2. Bonap. Am. Orn., ii., pl. 10, fig. 1.
Falco hudsonius, Linn. Syst. Nat., i., p. 128, (1766).
Hab. Throughout North America.

V. Subfamily AQUILINÆ.

1. Genus Aquila, Mœhring.

I. Aquila chrysaetos, (Linn.) Wilson. Am. Orn., vii., pl. 55, fig. 1. Aud. B. of Am., pl. 81.
Falco chrysaetos, Linn. Syst. Nat., i., p. 125, (1766).
Hab. Throughout North America.

2. Genus Haliaetus, Savigny.

1. Haliaëtus pelagicus, (Pallas.) Cassin, Birds of California and Texas, i., pl. 6.
Aquila pelagica, Pallas. Zoographia Rosso-Asiatica, i., p. 343, (1811).
Hab. North Western America.

2. Haliaëtus Washingtonii, (Audubon.) Aud. B. of Am., pl. 11.
Falco Washingtonii, Aud. Orn. Biog., i., p. 58, (1831).
Hab. Kentucky. Western?

3. Haliaëtus albicilla, (Linn.) Gould. B. of Eur., i., pl. 10.
Vultur albicilla, Linn. Syst. Nat. i., p. 123, (1766).
Hab. Northern North America, Greenland.

4. Haliaëtus leucocephalus, (Linn.) Wilson. Am. Orn., iv., pl. 36. Aud. B. of Am., pl. 31, 126.
Falco leucocephalus, Linn. Syst. Nat., i., p. 124, (1766).
Hab. Throughout North America.

3. Genus Pandion, Savigny.

1. Pandion carolinensis, (Gmelin.) Wilson Am. Orn., v., pl. 37, fig. 1. Aud. B. of Am., pl. 81.
Falco carolinensis, Gm. Syst. Nat. i., p. 371, (1788).
Hab. Throughout North America.

4. Genus Polyborus, Vieillot.

1. Polyborus brasiliensis, (Gmelin.) Aud. B. of Am., pl. 161.
Falco brasiliensis, Gm. Syst. Nat., i., p. 262, (1788).
Hab. Southern North America, Texas, Mexico.

5. Genus Morphnus, Cuvier.

1. Morphnus unicinctus, (Temminck.) Aud. B. of Am., pl. 392.
Falco unicinctus, Temm. Pl. Col., i., p. (liv. 53, about 1827.)
Falco Harrisii, Aud. Orn. Biog., v., p. 30, (1839).
Hab. Southern North America, Texas, Mexico.

Obs.—The above comprise all the species which have been well established as occurring within that portion of North America which is north of Mexico. Of these species several are of exceedingly rare occurrence, but the greater part are of sufficient abundance to be readily studied by the ornithologist or obtained by the collector, and of all of them there are specimens in the collection of the Academy. Of *Buteo Harlani* there is one specimen which, when in the Rivoli collection, was pronounced to be that species by Mr. Audubon, but which does not correspond with his plate and description so well as other specimens of a different species from Mexico, now in the collection, and of this species alone have I doubts about the correct name. It is in all probability a common Mexican bird, though whether previously described or not I am not at present prepared to say.

The object of this synopsis being mainly to give the correct nomenclature and date of original description, the numerous synonymes of North American Falconidæ have been omitted, though they will be carefully inserted in my Synopsis in Birds of California and Texas, parts 3 and 4.

In addition to the above species, there are in the collection of the Academy several specimens, principally western and northern, which have been referred with doubt to known species, but which I hope to further examine with the advantage of other collections from the same localities.

The Recording Secretary read his Annual Report, as follows :—

REPORT

OF THE RECORDING SECRETARY

For 1853.

During the past year, from Dec. 1, 1852, to Dec. 1, 1853, there have been elected fifty-one Members and eleven Correspondents.

Four members have died, to wit: Prof. W. E. Horner, M. D., Mr. Francis Lennig, John Price Wetherill, late Vice-President of the Academy, and Mr. Richard H. Kern, who was killed a few months since by the Indians, at the time of the massacre of Captain Gunnison's party, on the Sevier river.

During the past year, from January 1, to December 1, 1853, the following papers have been read before the Academy, referred to Committees, and upon their report, published in the Journal and Proceedings of the Academy.

By John Cassin, three, to wit: 1. Description of a new species of the genus Scalops, from Oregon, in the collection of the United States Exploring Expedition. 2. Catalogue of the Hirundinidæ, in the collection of the Academy of Natural Sciences of Philadelphia, July 1, 1853. 3. Descriptions of new species of Hirundinidæ and Psittacidæ, specimens of which are in the Collection of the Academy of Natural Sciences of Philadelphia.

By Mr. T. A. Conrad, three, to wit: 1. Synopsis of the North American Naiades. 2. On new species of Unio—published in the Journal. 3. Monograph of the genus Fulgur.

By Frederick A. Genth, Ph. D., two, to wit: 1. On a variety of gray Copper, perhaps a new mineral. 2. On Owenite, a new mineral.

By Charles Girard, five, to wit: 1. Descriptions of new Nemertians and Planarians, from the coast of the Carolinas. 2. Observations upon the American species of the genus Esox. 3. Note upon a nest constructed by Catfishes. 4. Descriptions of some new Fishes, from the river Zuni. 5. List of Reptiles, collected in California by J. L. Le Conte, with descriptions of New Species.

By the Rev. M. J. Berkeley, M. A., F.L.S., and Rev. M. A. Curtis.—Exotic Fungi, from the Schweinitz Herbarium, in the Academy of Natural Sciences of Philadelphia.

By Spencer F. Baird and Charles Girard, four, to wit: 1. Descriptions of new species of Fishes, collected by Captains R. B. Marcy and George B. McClellan, in Arkansas. 2. Descriptions of new species of Fishes, collected by Mr. John W. Clarke, in the United States and Mexican boundary survey, under Lieut. Col. James D. Graham. 3. Descriptions of new species of Reptiles, collected by the United States Exploring Expedition. 4. Researches upon Nemertians and Planarians.

By Francis N. Green, M. D.—Chemical investigation of remains of Fossil Mammalia.

By S. S. Haldeman.—Descriptions of some new species of Insects, with observations on described species.

By Edward Hallowell, M. D.—On some new Reptiles from California.

By Adolphus L. Heermann, M. D.—Catalogue of the Oological Collection in the Academy of Natural Sciences, Philadelphia.

By Pliny R. Hoy, M. D.—Three, to wit: Notes on the Ornithology of Wisconsin, three papers.

By Prof. W. G. Harvey and Prof. J. W. Bailey.—New species of Diatomaceæ collected by the United States Exploring Expedition.

By Isaac Lea.—1. Notice of the Mya nodulosa, Wood. 2. On the Castalia sulcata, Krauss.

By Major John Le Conte, F.L.S.—1. Description of a new species of Păcāne Nut. 2. Descriptions of three new species of Arvicola, with remarks upon other North American Rodents. 3. Observations on Crotalus horridus and C. durissus.

By John L. Le Conte, M. D., seven, to wit: 1. Descriptions of twenty new species of Coleoptera, inhabiting the United States. 2. Synopsis of the Silphales of America, North of Mexico. 3. Synopsis of the Scaphidilia of the United States. 4. Synopsis of the species of the Histeroid genus Abræus, inhabiting the United States. 5. Synopsis of the Meloides of the United States. 6. Synopsis of the Endomochydæ of the United States. 7. Synopsis of the Atopidæ, Rhipiceridæ and Cyphonidæ of the United States.

By Lieut. Maury, U. S. N.—Observations on Atmospheric Pressure.

By Dr. S. Weir Mitchell.—On the influence of certain states of Respiration on the Pulse.

By M. C. Read.—Notes on the birds of Northern Ohio.

By S. W. Woodhouse, M. D.—1. Description of a new species of pouched Rat, of the genus Dipodomys, Gray. 2. Description of a new species of Mouse, of the genus Hesperomys. In all 44.

During the past year the By-laws have been altered as follows:

Art. III. of Chapter III., strike out the word *fifty* and insert *one hundred*, making the clause to read as follows:

Art. III. But any member who shall pay into the hands of the Treasurer the sum of one hundred dollars shall be exempt from all future semi-annual contributions.

Art. I. of Chapter VIII, altered to read as follows:

Any Specimen belonging to the Academy and not presented under restrictions, may be loaned to members or correspondents for purposes of scientific investigation by the consent of three-fourths of the Curators, and for a period not exceeding three months; any person to whom specimens may be loaned shall first deposit with the Curators a sum, not less than Fifty Dollars, in cash, which they may deem necessary to ensure the safe return of the specimen, and he shall be subject to a fine equal in amount to one-third of the security given, for each month that the specimen may be retained beyond the time specified for its return. The specimen loaned, together with the date at which its return may be due, shall be reported to the Academy by the Curators at the meetings for Business in March, June, September and December.

All of which is respectfully submitted by

B. Howard Rand,
Recording Secretary.

The Librarian read the following:

REPORT FOR 1853.

The entire additions to the Library for the present year amount to 1011; of which 436 are in volumes, 432 in parts or numbers, and the remaining 143 in pamphlet form. They may be classified as follows:

	Volumes.	Parts or Nos.	Pamphlets
Natural Sciences,	248	120	75
Anatomy and Physiology,	25	16	23
Physical Science and Chemistry,	19		13
Journals, Transactions, Proceedings, &c. of Societies,	91	295	8
Voyages and Travels,	16		1
Geography,	5	1	
Biography,	1		3
Languages,	2		
Agriculture,	4		1
Miscellaneous,	25		19
Totals,	436	432	143

Of the whole number, we have received from Authors 68, from Editors 39; from Societies and Corporations 170; from Dr. Wilson 266; from Edward Wilson, Esq. 407; from other Members, Correspondents, &c. 56; and from the United States Government 5. Total 1011.

The number of volumes now in the Library may be estimated at nearly 16,000, including tracts bound in volumes, or arranged for binding. Of these about 5000 are on subjects of Natural Science, nearly 3000 volumes of Transactions, and about 1500 volumes of Voyages and Travels, and Anatomy and Physiology.

An opportunity for a correct enumeration will be afforded, it is hoped, during the coming year, when the contemplated enlargement of the accommodations for the Library will be completed.

The increase in the number of additions this year from Foreign Societies is very gratifying, most of them having been obtained by exchange of publications.

Further effort might, however, secure many other important acquisitions to the list, which are much needed, and frequently inquired for.

The necessity for a Library Fund, for binding and incidental expenses is becoming every year more urgent. For a long period the Society has been unable to make any provision of this kind from the Treasury, in consequence of which large collections of Tracts, Periodicals, and volumes bound in paper, have accumulated, and are with difficulty preserved from loss or injury.

We have now many hundred such volumes, and certainly not less than 2500 Tracts, the binding of which, however plainly and economically done, would require a considerable expenditure. The improved condition of the Treasury of late will perhaps authorise an appropriation to this object at present, and whenever hereafter a surplus fund at the end of each year would admit of it, subject to the approbation of the Treasurer. The attention of the Society to this matter is earnestly requested.

We hope, however, that the day is not distant, when a permanent Library Fund will be established, not simply for meeting the ordinary expenses of a large Library, but sufficient for a regular annual outlay for new scientific publications.

Respectfully submitted by **Wm. S. Zantzinger,**
Librarian.

Hall of the Academy of Natural Sciences, December 27, 1853.

The following Report was read by Dr. Leidy:—

REPORT OF THE CURATORS FOR 1853.

The great increase of the Cabinet of the Academy has rendered an enlargement of its building absolutely necessary, not only to accommodate new collections which may be received, but also to arrange those already in our possession. The means through which this much desired object has nearly been accomplished, were obtained from members of the Society and liberal citizens of Philadelphia; and we shall soon have almost double the space previously occupied by the museum. The alterations and enlargement of the building, now in progress of completion, mainly consist of an additional story, the floor of which rests upon the upper gallery of the former hall. The new hall has three ranges of galleries, while the former, in its present condition, has but two.

The natural history collections are to be removed from the east basement room to the upper halls, and this is to be appropriated to the library, which then will occupy the entire basement of the building, except a room for unpacking, &c., and a small office for the Committee of Publication.

Another important arrangement to be made is the construction of small rooms for the different committees, which will afford increased facilities in the transaction of business and the arrangement of the museum. Four of these will be made in the upper hall, and three in the lower one.

During the year just about closing, the donations to the museum, except in one department, that of comparative anatomy, have been unusually small, which, however, in part arises from the approaching completeness of several of its collections. The donations in the different classes of natural history are as follows:

Mammalia.—Of this class 32 species have been presented, principally by Dr Heermann, Dr. Watson, Col. McCall, and Mr. J. Krider.

Aves.—Of mounted specimens of birds, and of bird-skins, there have been received 107 of 73 species, of which one collection of 23 species of birds of California was presented by Dr. Heermann, and 32 species collected in the western territories were presented by Col. McCall.

Of nests, those of 2 species of birds, and of eggs, those of 4 species have been presented.

Reptilia.—Of this class 57 specimens of 35 species have been presented, principally by the Smithsonian Institution. Besides these Dr. Ford, of the Gaboon mission, presented a valuable collection from Western Africa.

Pisces.—6 species of fishes have been presented.

Mollusca.—A large collection of marine shells from Lower California were presented by Dr. Heermann, and a small collection from Texas by Dr. Engelmann, besides which Mr. Lea presented an interesting specimen of *Pholas dactylus*, piercing gneiss.

Crustacea.—Of this class 9 species have been presented, principally by the Smithsonian Institution.

Insecta, Myriapoda and Zoophyta.—A collection of insects and myriapods of Western Africa was presented by Dr. Ford, and several species of insects from the same locality by Dr. Hays. A few insects and echinoderms from Texas were presented by Dr. Engelmann.

Comparative Anatomy.—To this department, during the past year, the cabinet has received the richest accessions.

The entire anatomical collection of our late lamented president, Dr. Morton, consisting of 867 human crania, 601 crania of inferior animals, and other osteological specimens, was purchased by a number of members and liberal citizens and presented to the Academy.

Mr. Fahnestock presented a collection of 33 crania of birds and mammals. Besides these 10 other anatomical specimens have been received, among which are a fine cranium of *Phoca leptonyx*, presented by Lieut. M. G. Watson, U. S. N., one of *Auchenia Lama*, presented by Dr. James M. Greene, U. S. N., and one of an aboriginal American by Dr. R. W. Gibbes.

Botany.—Our herbarium has been enriched by a collection of Arctic plants, presented by Dr. E. K. Kane, U. S. N., and one of 61 species of woods from Dr. Engelmann, of St. Louis. Besides the above, 59 botanical specimens were presented, among which is a collection of marine algæ from Mr. Ashmead, and 16 species of fruits from Mr. Ellis Yarnall, Jr.

Palaeontology.—112 specimens of organic remains have been presented, principally from Dr. A. T. King, Mr. L. J. Germain, and Mr. T. Conrad. Among them is the unique specimen of the *Bathygnathus borealis*, of the New Red Sandstone of Prince Edward's Island, presented by Messrs. Lea, Vaux and Dr. Leidy.

Mineralogy.—Of minerals 31 specimens have been presented, principally by Mr. C. M. Wheatley and Dr. Rand.

The above report is respectfully submitted by

JOSEPH LEIDY,
Chairman of the Curators.

December 27th, 1853.

The Annual Report of the Treasurer was read and referred to the Auditors.

Mr. Vaux offered a Resolution which was adopted, "that the privilege of endorsing tickets of admission to the Museum on public days be granted to Mrs. Wetherill, widow of our late esteemed Vice President, John Price Wetherill, and that she be authorised and invited to visit at all times the Museum and Library of the Academy."

The Society then proceeded to elect Officers and a Publication Committee for the ensuing year. The following members were announced duly elected:

President, - - - -	GEORGE ORD.
Vice Presidents, - - -	Robert Bridges, M. D., Isaac Lea.
Corresponding Secretary, -	John L. LeConte, M. D.
Recording Secretary, - -	B. Howard Rand, M. D.
Librarian, - - - -	Wm. S. Zantzinger, M. D.
Treasurer, - - - -	George W. Carpenter.
Curators, - - - -	Joseph Leidy, M. D., William S. Vaux, Samuel Ashmead, John Cassin.
Auditors, - - - -	Robert Pearsall, Samuel Ashmead, James C. Fisher, M. D.
Publication Committee, -	Wm. S. Vaux, Robert Bridges, Isaac Lea, W. S. W. Ruschenberger, M. D., H. C. Hansen.

ELECTION OF MEMBER AND CORRESPONDENT.

John B. Biddle, M. D., of Philadelphia, was elected a *Member*, and Prof. John Le Conte, of Athens, Georgia, was elected a *Correspondent.*

DONATIONS TO MUSEUM

IN JAN. AND FEB., 1852.

January 6th.

A small collection of Fishes, Insects, &c., from the West Coast of Africa. Presented by Dr. Henderson, U. S. N.

Vespertilio noveboracencis. From Mr. John Cassin.

Pteropus Leachii, West Coast of Africa, and Scarabæus ——, from do. From Dr. Isaac Hays.

Noctilio leporinus Lin. from Nicaragua. From Dr. T. B. Wilson.

Fossil Spatangus, from Georgia. From Dr. Ruschenberger.

Fruit of the Doum Palm, from Thebes. From Dr. Sharpless.

Specimens from which have been characterised the following by Dr. Le Conte. viz: Dicotyles depressifrons, D. cristatus, Procyon priscus, Protochœrus prismaticus; from Clinton Co., Missouri. Presented by Dr. J. L. Le Conte.

Anomodon Snyderi *Le Conte*, from Galena, Illinois, and Galeodes ——, from Guatemala. From the same.

Bicarbonate of Ammonia, in masses; from Patagonia. From Dr. Burtt, U. S. N.

Fossil Gnathodon, from the Desert of the Colorado. From Dr. Le Conte.

January 13th.

Phosphate of Lime, from Sussex Co., New Jersey, and a specimen of Adipocire. From J. Price Wetherill, Esq.

Skin of Ursus Americanus, (American Black Bear). From Dr. D. Leasure, of Lawrence Co., Penn.

Antlers of Cervus virginianus. From John Cuttle, Esq., of Clearfield Co., Pennsylvania.

February 3d.

Skin and entire skeleton of Hippopotamus Liberiensis, *Morton*, from the River St. Paul's, West Africa. Presented by Dr. T. B. Wilson.

Very beautiful and perfect skeleton of Troglodytes gorilla, *Savage*, and a specimen of the hair of the same, several Serpents, Lizards and Insects; from the Gaboon River, Western Africa. From Dr. Henry A. Ford, of Glasstown, W. Africa.

Fossil Zoophyte. From Mrs. Dr. Morton.

A collection of Fossils and recent Shells. From Dr. Caspar Wister.

February 10th.

A collection of Shells, Sharks' Teeth, Coprolites, a fragment of bone from the Reg Crag, Suffolk, England, and specimens of Corundum, from Hindostan. From Mr. Thomas Fisher.

Several specimens of Clinochlore, from Chester Co., Penn. From Dr. W. D. Hartman, of Westchester.

Tooth of Ptychodus, and two do. of Lanma elegans, from the Cretaceous of Alabama. Presented by Mr. Joseph Jones.

Twelve specimens of Coal Fossils, Carbonate of Iron with Blende, Carbonate of Iron with Quartz; from the vicinity of Blairsville, Penn. From Edward Miller, Esq.

Acicular Sulphate of Barytes, a very beautiful specimen, from Perkiomen, Penn. From R. P. Remington, Esq.

February 17th.

Nidus of Natica heros, from New Jersey. From Mr. Isaac Lea.

A collection of Coleoptera and Lepidoptera from the vicinity of Westchester, Pa. From Dr. W. D. Hartman, of Westchester.

Numerous specimens of Ampullaria Cornu Arietis. From Mr. John Krider.

Cranium phrenologically marked, according to Dr. Spurzheim. From Dr. Ruschenberger.

DONATIONS TO LIBRARY,

In Jan. and Feb. 1852.

January 6th.

Elementi di Fisica generale e sperimentale ad uso delle Regie Scuole di Filosofia di G. D. Botto, 4th ed. 8vo. From the Author.

Pennsylvania Farm Journal. Edited by S. S. Haldeman. No. 10, Jan. 1852. From the Editor.

Catechismo Agrologico ossia principii di Scienzia applicata all' Agricoltura. Di G. D. Botto. From the Author.

American Journal of Science and Arts, Jan. 1852. From the Editors.

Quarterly Journal of the Geological Society of London, vol. 7, No. 28. From the Society.

Proceedings of the Boston Soc. of Natural History, vol. 9, pp. 81—95. From the Society.

On the progress of recent Science; an introductory lecture by J. K. Mitchell, M. D., Nov. 13, 1851. From the Author.

The following were presented by Dr. Wilson on the usual condition:

Revue et Magazin de Zoologie, 1851, No. 10.

Archiv für Naturgeschichte, von Dr. F. H. Troschel, 1850, No. 5, 1851, Nos. 2, 3.

Annales des Sciences Naturelles, 3me serie. Zoologie, Tome 13, Nos. 1—6; Tome 14, Nos. 1—6.

Species générales et iconographie des Coquilles vivants. Par. L. C. Kiener. Liv. 135.

London Athenæum for Nov. 1851.

Comptes rendus. Tome 33, Nos. 19, 20.

Zeitschrift für Malakozoologie: von Menke und Pfeiffer, 1850, No. 7.

Systémes de diverses classes d'animaux, tome 1^{me}, 3me. partie; Systéme des Annelides, par Jules-Cæsar Savigny.

The following were presented by Mr. Edward Wilson on the usual condition:

Histoire de la Louisiane. Par M. Le Page du Pratz. 3 vols. 12mo.

J. G. D. Richter's Ichthyotheologie, 12mo.

Nouveau Traité des Serins de Canarie. Par M. J. C. Hervieux de Chanteloup. Nouv. ed. 12mo.

Amusemens des dames dans les Oiseaux de Voliere. Par M. Buchoz, 12mo.

Le Pecheur Français. Par Kresz aine, 12mo.

Sur la formation du Cœur dans le Poulet. Par M. de Haller. 2 vols. 12mo.

Naturhistorische Reise durch einen Theil Schwedens. Von Dr. F. Weber und Dr. M. H. Mohr. 12mo.

Pisciceptologie; ou l'art de la Peche a la ligne. Par L. C***. 3me. ed. 12mo.

Pinax Rerum Naturalium Britannicarum. Authore Christ. Merrett, 12mo.

Traité de la Sangsue Médicinale. Par Louis Vitet, 8vo.

An account of some German Volcanoes, &c. By R. E. Raspe, 8vo.

Natural History of Nevis and the rest of the English Leeward Charibee Islands in America. By the Rev. Mr. Smith, 8vo.

Philosophie Physiologique, &c. 8vo. Par M. de Buzareingues.

Rapports généraux des Travaux de la Société Philomathique de Paris, 1788—92, 2 vols. 8vo.

Traité élémentaire de Géologie. Par M. Rozet, 2 vols. 8vo.

Ignatii a Born Index Rerum Naturalium Musei Cæsari Vindebonensis, 8vo.

Ancient Sea-Margins. By Robert Chambers, Esq., 8vo.

An Essay towards a History of Hexham, in three parts. By A. B. Wright, 8vo.

Monographia Chalciditum. By Francis Walker, 8vo.

Essai de Zoologie. Par B. Faujas St. Fond, 3 vols. 8vo.

Physico-Theology. By the Rev. Wm. Derham, 2 vols. 8vo.

Observations, experiences et memoires sur l'Agriculture, &c. Par M. Varenne de Fenille, 8vo.

Nouveau voyage aux Iles de l'Amerique, 6 vols. 12mo. (Labat).

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London, Edinburgh and Dublin Philosophical Magazine, Feb., 1852.

Zeitschrift für Wissenschaftliche Zoologie von C. T. von Siebold und A. Kölliker. Vols 1 and 2.

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A continuation of the Alphabetical Index to the Philosophical Transactions of the Royal Society of London. 4to. (From 1781 to 1820.)

March 16th.

Annales de la Société Entomologique de France. 1851. No. 4. From Dr. Wilson.

Revue et Magasin de Zoologie. 1851, No. 12, 1852, No. 1. From the same.

Journal of the Franklin Institute for March, 1852. From the same.

Comptes Rendus. Tome 34, Nos. 1—5. From the same.

Pennsylvania Farm Journal. Edited by S. S. Haldeman. No. 12, March, 1852. From the Editor.

Proceedings of the Boston Society of Natural History. Vol. 4, pp. 129—144. From the Society.

Histoire Physique, Politique et Naturelle de l'Ile de Cuba. Par M. Ramon de la Sagra. Nos. 57—61. Folio. From Messrs. Vaux, Elwyn, Phillips and Carpenter.

Foot-Prints of the Creator, or the Asterolepis of Stromness. By Hugh Miller. 8vo. From Mr. John Merrick.

Mr. Edward Wilson presented the following, on the usual condition:—

Memoires de la Société Ethnologique. Tome 2. 8vo.

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Das Thierreich geordnet nach seiner Organisation, von Baron von Cuvier. Von F. S. Voight. 6 vols. 8vo.

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Nachricht von dem Versteinerungen des Groszfurst-enthums Siebenburgen, &c. Von J. E. von Fichtel. 4to.

Beobachtungen auf Naturhistorischen Reisen von A. F. Schweigger. 4to.

Dr. Bremser über Lebende Würmen im lebenden Menschen. 4to.

Observations made during a Voyage round the World. By J. R. Foster, LL. D. 4to.

Recherches sur les Ossemens Fossiles du Department du Puy de Dome. Par l'Abbe Croizet et Jobert aine. 4to.

Vierzehn kupfertafeln nebst deren Erflarung zur Gebentschulfe der landwirthschaftlichen Thiere. Von Dr. J. C. G. Joerg. Folio.

Delle malattie del grano in Erba. Di Conte Francisco Ginanni. 4to.

J. M. Lancisci de motu cordis et aneurysmatibus; opus posthumum. Folio.

De Halyotidum structura dissertatio inauguralis. Auctore B. J. Feider.

J. G. Schneider's erster Beytrag zur Naturgeschichte der Schildkröten.

Memoria sobra la influenza de una temperatura baja en las metamorfosis de los insectos y por consiquiente en su aparicion. Por Mariano de la Paz Graells.

Dissertation sur les affections vermineuses en general. Par J. M. Taillefèrie, D. M.

Vergleichende Betrachtungen über die Mannigfaltigkeit in der organischen und unorganischen Natur. Von Dr. Franz von Kobell.

Essai sur l'histoire medicale des Cantharides. Par Mathieu Guilbert.

Dissert. inaug. zootomica de Insectorum genitalibus. Auctor Dr. J. J. Hegetschweiler,

Disquisitiones circa nonnullarum avium systema arteriosum. Auctor Fredericus Bauer.

Synopsis Hymenopterologiæ Scandinavicæ af G. Dahlbom.

Memoire sur des Bois des Cerfs Fossiles (Faujas de St. Fond.)

Dissert. inaug. med. sistens ovi avium historiæ et incubationis prodromum. Auctor L. S. Comes ab Tredern.

Observationes anatomicæ circa fabricam Ranæ Pipæ. Auctor F. G. Breyer.

Monographie de la famille des Hirundinées. Par Alfred Moquin-Tendon.

De structura lumbrici terrestris. Auctore Julius Leo.

Abhandlung uber das Vermeintliche Barentige Faulthier. Von Fr. Tiedemann.

Observationes chemico-medicæ de Lacte humano. Auctor F. J. Voltelen.

Pauli Josephi Barthez oratio academica de principio vitali hominis.

Symbolæ ad Ovi Avium historiam ante incubationem. Auctore J. E. Purkinje.

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Systematische Uebersicht der Trilobiten und Beschreibung einiger neuen Arten derselben. Von Hrn. Prof. Dr. Goldfuss.

Observations anatomiques sur l'Ivoire. Par J. R. Duval.

Sur un ordre de Mammiferes qui nourissent leurs petits nouveaux nés sans allaitement.

Memoires sur la structura et les usages des glandes monotrémiques. Par M. Geoffroy St. Hilaire.

Catalogue des Mollusques vivants de la Champagne Meridionale. Par MM. J. Ray et H. Drouet.

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Catalogue of British Marine recent shells.

Om Cranchia megalops Prosch af O. Mörch.

Notice topographique et medicale sur la Ville d'Hyêres. Par le Dr. Barth. 2e ed.

Catalogue mêthodique des Echinides du Departement de l'Yonne. Par M. Gustave Cotteau, 1850.

Concours d'animaux reproducteurs males, d'instruments, &c. de l'agriculture. 8vo.

Considérations anatomiques, physiolog. et patholog. sur les Mamelles. Par Joseph Fred. Landes.

Faune Entomologique de Madagascar, Bourbon et Maurice. Lepidoptéres. Par le Dr. Boisduval; livs. 1—8.

J. C. Schaeffer Piscium Bavarico-Ratisbonensium Pentas. 4to.

J. C. Schaeffer's fernere Zweifel und Schwierigkeiten welche in der Insectenlehre auroch vorwalten.

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De l'influence des climats sur l'homme. Par E. D. Sauveur Viader.

Notice sur le Chimpanzee.

Versuch über die beste Einrichtung zur Aufstellung Behandlung und Aufbewarung der Verscheidenen.

Naturkörper und Gegenstande der kunst, vorzuglich der Conchylien-Sammlungen. Von F. C. Schmidt. 8vo.

Iconographie Conchyliologique. Par Polydore Roux.

Dissertation sur la prcéminence des Chats dans la Société sur les autres animaux d'Egipte, &c.

Plantæ per Galliam Hispaniam et Italiam observatæ a R. P. Jac. Barreliero. Opus posthumum. Folio.

Stirpium sciagraphia et icones ex Musæo Dom. Chabræi, M. D. Folio.

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Historia Botanica practica. Opus Eq. Jno. Baptiste Morandi Mediolanensis. Folio.

Atlas to the "Amboinische Rariteitkammer" of Rumphius. Folio.

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Introduction to Algology: with a Catalogue of American Algæ or Sea-weeds. by John Hooper. From the Author.

Notice of the origin, progress and present condition of the Academy of Natural Sciences of Philadelphia. By W. S. W. Ruschenberger, M. D.

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A Manual of Entomology, from the German of Dr. H. Burmeister. By W. E. Shuckard. Nos. 1—12. 8vo.

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Untersuchungen über die Entwickelungsgeschichte der Fische nebst einem Anhange über die Schwimblase. Von Dr. Karl Ernst von Baer.

Thesaurus Literaturæ Botanicæ omnium Gentium. Curavit G. A. Pritzel. Fascic. 1—6. 4to.

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Disquisitiones de structura et textura canalium aeriferorum. Scripsit Ernestus Shultz.

Atlas of Dinotherium giganteum (Klipstein und Kaup.)

Ueber das Gabaerorgan des Menschen und der Säugethiere im Schwangern und Nicht-Schwangern Zustande. Von D. J. C. G. Joerg. Folio.

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Dominici Cyrilli, M. D. Entomologiæ Neapolitanæ specimen primum. Folio.

Deliciæ Naturæ selectæ. Von Georg. Wolfgang Knorr. 2 vols. Folio.

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Sitzungsberichte der k. Akad. der Wissen. Mathemat-Naturwissen. Classe. Vol. 6, Vol. 7, parts 1 and 2. 8vo. From the Academy.

Denkschriften der k. Akad. der Wissen., Mathemat-Naturwissen. Classe. Vol. 2, pt. 1. Folio. From the same.

Remarks on Entomology, chiefly in reference to an Agricultural benefit. By Wm. D. Brinckle, M. D. From Dr. Elwyn.

Report on the Mines and Lands of St. Lawrence Mining Company. From the same.

Annals of the Minnesota Historical Society for 1852. From the Society.

Ueber die fossilen Säugethiere Wurtembergs von Dr. Georg. Jäger. From the Prince de Wied.

Nova Acta Acad. C. L. C. Nat. Curiosorum. Vol. 23, part 1. 4to. From the Academy.

Icones Filicum: Figures and descriptions of Ferns, principally such as have been unnoticed by Botanists, or incorrectly figured. By Wm. J. Hooker and R. K. Greville. Nos. 1. to 10. Folio. From Dr. Joseph Carson.

Archiv für Naturgeschichte. Von Dr. F. H. Troschel. 1849, No. 6; 1850, Nos. 2, 3, 4, 5; 1851, Nos. 1, 2, 3. From the Editor.

Journal d'Agriculture, ou Transactions de la Soc. d'Agriculture du Bas-Canada. Vol. 5, No. 3. From the Society.

Charleston Medical Journal and Review for March, 1852. From the Editor.

Quarterly Journal of the Geological Society of London. Vol. 8, pt. 1. From the Society.

Pennsylvania Farm Journal. Edited by S. S. Haldeman. April 1852. From the Editor.

Dr. Wilson presented the following, on the usual condition:—

Annals and Magazine of Natural History, March, 1852.

Archiv für Naturgeschichte. Von Dr. F. H. Troschel. 1850, No. 5.

London Athenæum for Feb., 1852.

Conchologia iconica. By Lovell Reeve. No. 105.

Zeitschrift für Malakozoologie. Von Dr. Menke und Dr. Pfeiffer. 1851. Nos. 6—11.

London, Edinburgh and Dublin Philosophical Magazine, March, 1852.

April 13th.

Elements of Chemistry. By Thomas Graham. Second American edition, with notes by Robert Bridges, M. D. 8vo. From Dr. Bridges.

Registro trimestre, ó colleccion de Memorias de Historia, Literatura, Ciencias y Artes. Por una Sociedad de Literatos. Tome 1. 8vo. From Wm. H. Prescott, Esq., Boston.

Proceedings of the Boston Society of Natural History. Vol. 4, pp. 145—160. From the Society.

Review of "Reports on the Coal of the Albert Coal Mining Co., New Brunswick, by C. T. Jackson, M. D." By a Fellow of the Geological Society of London, &c. From Mr. E. Le Gal, N. Y.

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Journal of the Franklin Institute, April, 1852.

Comptes Rendus. Tome 34, Nos. 6, 7, 8, 9.

Species génerale et Iconographie des Coquilles vivantes. Par L. C. Kiener. 136e. Liv.

The following were presented by Edward Wilson, Esq.:

A Journal of Natural Philosophy, Chemistry and the Arts. By William Nicholson. 18 vols. 8vo.

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Eléments de Géologie mis a la portee de tout le monde. Par L. A. Chaubard. 2e. ed.

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De l'organisation des Animaux. Par M. H. Ducrotay de Blainville. Tome 1me 8vo.

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Joannis de Laet Antverpiani de Gemmis et Lapidibus libri duo. Gemmarum et Lapidum Historia. Auctore A. Boetius de Boot, (in one vol. 8vo.)

Dictionnaire universel des Fossiles propres. Par M. E. Bertrand. 8vo.

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Memoires couronnes et Memoires des Savants etrangers, publies par l'Acad. Royale de Belgique. Vol. 23. 1848—1850. 4to. From the same.

Bulletins de l'Acad. Royale de Belgique. Vol. 16, pt. 2; vol. 17, pts. 1 and 2; vol. 18, pt. 1. From the same.

Annuaire de l'Acad. Royale de Belgique. 1850 and 1851. From the same.

Sur la Statisque Criminelle du Royaume-uni de la Grande-Bretagne. Par M. A. Quetelet. From the Author.

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Journal of the Indian Archipelago and Eastern Asia. Vol. 5, No. 10. From the Editor.

Handbuch der Petrefaktenkunde. Von Dr. Aug. Quenstedt. No. 2. From Dr. Wilson.

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Encyclopedie d'Histoire Naturelle. Par le Dr. Chenu. Coleoptères, Nos. 5 et 6; Papillons, Nos. 1 et 2; Oiseaux, Nos. 1, 2 et 3; Quadrumanes, No. 6.

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Anatomie Comparee de l'appariel respiratoire dans les animaux vertèbres. Par A. Lereboullet. 4to.

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Coquilles et Echinodermes fossiles de Colombie, recueilles de 1821—1833 par M. Boussingault et decrits par Alcide d'Orbigny.

Observationes anatomicæ de Distomate hepatico et lanceolato. Auctore D. Ed Meblis. Folio.

Reptilia Musei Zoologici Vratislaviensis recensita et descripta. Auctore J. L. G. Gravenhorst. Fascic. 1mus. Chelonios et Batrachia. Folio.

Ascension a l'Etna. Par Alfred Malherbe.

Catalogue des Oiseaux observés en Europe, principallement en France. Par C. B. Degland.

Description of the Skeleton of the Fossil Deer of Ireland. By John Hart. 2d ed.

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Catalogue des Oiseaux comprenant la collection du feu le Dr. Abeille.

Joannis Severini Tentamen Zoologicæ Hungaricæ.

Description of the Missourium. By Albert Koch.

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Several crania of Chelonia and Mammalia, several skeletons of Birds, and two of Apes. From Mr. William Wood.

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Extremity of Snout of a fossil Sword Fish, from the Green Sand of New Jersey. From Dr. C. H. Budd.

Several specimens of fossil Shells, from the Drift near Philadelphia. From Mr. Kilvington.

Unio Stewardsonii and Melania solida, from Tennessee. From Dr. Stewardson.

Several specimens of Fishes and Salamanders. From Mr. Edward Harris.

A collection of Crustacea, Fishes and Serpents, from New Jersey. From Major LeConte.

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Very fine cast in colored plaster of Sauropus primævus, Lea, natural size. From Mr. Isaac Lea.

Slab of Stone containing sculptured human footprints, from Alton, Illinois. Deposited by Mr. Isaac Lea.

Fossilized Guano, from the Coast of Chili, lat. 23° S. From Mr. Aubrey H. Smith.

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Numerous specimens of Rocks and Fossils from Baffin's Bay and Melville's Bay; Lichens, from Cape Riley; skin of Canis lagopus, four crania of Esquimaux, and the following Bird skins from Baffin's Bay; Uria grylle, Mergulus alba, Larus eburneus, L. argentatus, Bernicla brenta, and Oidemia molissima. Presented by Dr. E. K. Kane, U. S. N.

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Panotis Catesbei from the Delaware River. From Mr. T. R. Conrad.

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Skins of Piaya rutila, Tityra Cayana, Phœnicircus carnifex, Conophago nigrogenys, Thamnophilus stellaris, Thamnophilus ———? Totanus hypoleucus, Larus argentatus, young, Acanthylus pelasgicus, Cypselus ———? Formivorus ———? and Lipangus lateralis; from Demarara. Presented by Dr. H. G. Dalton, of Demarara.

Collection of Coleoptera, Lepidoptera and Hymenoptera; from Demarara. Presented by the same.

Three specimens of fossil infusorial Earth, from Germany. From Dr. F. A. Genth.

A large collection of American Birds' Eggs. From Mr. John Krider.

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Annual of Scientific Discovery, or Year Book of facts in Science and Art, for 1852. Edited by David A. Wells. 12mo. From the Editor.

Journal d'Agriculture, ou Transactions de la Société d'Agriculture du Bas-Canada. Vol. 5, No. 4. From the Society.

Proceedings of the Boston Society of Natural History. Vol. 4, pp. 161—176. From the Society.

American Journal of Science and Arts, May, 1852. From the Editor.

History of the Indian Tribes of the United States. By H. R. Schoolcraft, LL.D. Part 2, 4to. From Mr. L. Lea, U. S. Commissioner of Indian Affairs.

Iconographie des Oiseaux. Par M. Drapiez. 18mo.

Geological Essays: or geological phenomena found in various parts of the United States. By Horace H. Hayden. 8vo. From Mr. Charles E. Smith.

Recherches experimentales sur l'action convulsivante des principaux poisons. From Dr. Leidy.

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Dr. Wilson presented the following, on the usual condition:

Annals and Magazine of Natural History for April, 1852.

London, Dublin and Edinburgh Philosophical Magazine, April, 1852.

History of the British Mollusca. By Forbes and Hanley, No. 45.

Revue et Magazin de Zoologie, 1852, No. 2.

Conchologia Iconica. By Lovell Reeve. No. 106.

Comptes Rendus. Tome 34, Nos. 10, 11, 12.

The following were presented by Mr. Edward Wilson, on the usual condition:

Coquilles fluviatiles et terrestres dans le Department de l'Aisne, et aux environs de Paris. Par M. Poiret.

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Historische und physiologische Beschreibung einer art-hochst-schadlicher Zee-Wurmer. Von Putoneo. 12mo.

Hrn. D. und Prof. Hacquet Nachricht von Versteinerungen von Schalthieren. Von J. S. Schræter. 8vo.

Ophiographia physica-chymico-medica. Von L. H. Lutzen. 12mo.

Hadriani Relandi oratio de Galli cantu Hierosolymis audito. 12mo.

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Lectures on Histology. By John Quekett. 8vo.

Annals of Anatomy and Physiology. By John Goodsir.

Traité de Palæontologie. Par F. J. Pictet. Tome 1er. 2d ed. and Atlas. 4to.

Memoires sur la famille des Fougères. Par A. L. A. Fée. 3me et 4me Mems. folio, 5me Mem. 4to.

Comptes Rendus. Tome 36, No. 5.

Journal of the Franklin Institute, March, 1853.

Illustrations Conchyliologiques. Par M. Chenu. No. 81. Folio.

March 22d.

Annual Report of the Trustees of the State Library of New York. Feb. 1853. From the Trustees.

The following were presented by Mr. Edw. Wilson, on the usual condition:

Versuch einer Lithurgik oder ökonomischen Mineralogie. Von Carl Schneider. 2 vols. 8vo.

Index Fossilium quæ collegit et in classis et ordines disposuit Ignatius S. R. I. Eques a Born. 2 vols. 8vo.

Descrizione topografica, &c. del Regno delle Due Sicilie di Giuseppe del Re. 2 vols. 8vo.

Cosmologie, ou description generale de la Terre. Par C. A. Walckenaer. 8vo.

Voyage en Hanovre, fait dans les années 1803 et 1804. Par M. A. B. Mangourit. 8vo.

Einleitung in der Geologie nebst einer Geologie und Mineral-Geographie von England, von Robert Bakewell. Von R. H. Müller. 8vo.

Pflanzen und Gebirgsarten von Marienbad. Herausgeg. von Dr. C. J. Heidler. 8vo.

Le Conservateur: ou recueil de morceaux inedits d'Histoire, de Politique, &c. tires des portes-feuilles de N. François (de Neufchateau.) 2 vols. 8vo.

Mineralogisches Bemerkungen von dem Karpathen. Von Johann E. von Fichtel. 2 vols. 8vo.

Mineralogische Aufsätze. Von J. E. von Fichtel. 8vo.

Tableau Methodique des Espèces Minerales. Par J. A. H. Lucas. 2 vols. 8vo.

Schriften von Heinrich Steffens. 8vo.

Physikalisch-politische Reise in die Nörischen Alpen im Jahre 1781 und 1783. Unternommen von Hacquet. 8vo.

Voyage a Buenos Ayres et a Porte-Alégre de 1830 a 1834. Von Arséne Isabelle. 8vo.

Isaacus Vossius de Nili et aliorum Fluminum origine. 4to.

Instituzioni di Mineralogia con la maggior chiarezza disposti per facilmenti imparare a conoscere i Fossili. Dal Cav. Don Giuseppi Benvenuti. 8vo.

Icones Avium. Indicem systematicum addidit F. C. Kielson. 4to.

Elemens de Mineralogie applique aux Sciences Chimiques. Par MM. Girardin et Lecoq. 2 vols. 8vo.

Ornithologie Abrégé de la France. 4to.

Lehrbuch der Mineralogie. Von Franz A. Reuss. 8 vols. 8vo.

Accord du Livre de la Genese avec la Geologie et les Monumens Humains. Par M. Gervais-de-Laprise. 8vo.

April 5th.

Statements, supported by evidence, of Wm. T. G. Morton, M. D., on his claim to the discovery of the Anæsthetic properties of Ether. 8vo. From Dr. Morton.

Catalogue of North American Reptiles in the Museum of the Smithsonian Institution. Part 1. Serpents. By S. F. Baird and C. Girard. 8vo. From the Institution.

Annals of Science, No. 10. From Dr. Leidy.

Principles of Botany, as exemplified in the Cryptogamia. By Harland Coultas. 8vo.

A classified Catalogue, with Synonyms, of the Terrestrial and Fluviatile Testaceous Mollusks of Chester Co., Penn. By Wm. D. Hartman, M. D. From the Author.

Comptes Rendus. Tome 36, Nos. 6 and 7. From Dr. Wilson.

London Athenæum for February, 1853. From the same.

Annales de Chimie. 3me Serie. Feb. 1853. From the same.

The following were presented by Mr. Edw. Wilson, on the usual condition:

Istoria naturale del Monte Vesuvio. Di Gaspare Paragallo. 8vo.

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Statistique Mineralogique du Departement de la Drome. Par M. Scipion Gras 8vo.

Handbuch für den Liebhaber der Stuben-Haus-und aller der Zahmung werth Vogel. Von Ch. B. Brehm. 8vo.

Die Vulkane alterer und neuerer Zeiten. Von Franz von Beroldingen. 8v

Versuch eines Topographisch-mineralogischen Handbuches von Ungern. Durch Chr. Andreas Zipser. 8vo.

Voyage critique a l'Etna en 1819. Par T. A. Gourbillon. 2 vols. 8vo.

Marci Antonii Plenciz Opera Medico-Physica. 8vo.

Les Anciens Mineralogistes du Royaume de France. Par M. Gobert. 2 vols. 8vo.

Nouveaux élémens de Mineralogie. Par M. Brard. 3me ed. 8vo.

System einer allgemeinen Hydrographie des Erdbodens. Von J. F. Wm. Otto. 8vo.

Allgemeine Geschichte der Mineralischen Gifte entworfen von J. F. Gmelin. 8vo.

Vollstandige Naturgeschichte des Pferdes. Von Georg Fr. Sebald. Herausg. von Karl W. Ammon. 8vo.

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Propositions Geologiques, pour servir d'introduction a un ouvrage sur les élémens de la Chorographie. Par Henri G. Oberlin. 8vo.

J. C. von Lehmann Grundsätze der Mineralogie. 8vo.

Promenades aux environs du Clermont et du Mont-Dore. 8vo.

Esquisse Geologique de la Turquie d'Europe. Par A. Boue.

C. Linnæi Systema Naturæ, 1735.

Della Natura de'Fuimi Trattato fisico-matematico del Dottore Domenico Guglielmini con le annotazioni di Eustachio Manfredi. 2 vols. 8vo.

April 12th.

Report of the Commissioners of Patents for the year 1819. Parts 1 und 2, 8vo.; same for 1851, part 1. From Mr. Chas. E. Smith.

Journal of the Society of Arts of London, parts 1 to 15. From the Society.

Annals of Science, No. 11. From Dr. Leidy.

Journal of the Franklin Institute for April, 1853. From Dr. Wilson.

Archiv für Anatomie, Physiologie, &c. von Dr. Johannes Müller. 1852, No. 5. From the same.

The following were presented by Mr. Edw. Wilson, on the usual condition:

Kreuznach und seine Brom-und Iode-Haltigen Heilquellen in ihren wichtigsten Beziehungen. Von J. E. P. Prieger. 8vo.

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Naturgeschichte des Succins oder des sogenannten Bernsteins. Von J. F. John. 8vo.

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Storia naturale e generale dell' Etna del Canonico Giuseppe Recupero. 2 vols. 4to.

Description hydrographique et historique des Marais Pontins. Par M. de Prony. 4to. and atlas folio.

Orographie de l'Europe. Par M. Louis Bruguire. Recueil de Voyages et de Memoires publie par la Société de Geographie. Tome 3, 4to.

A general natural history; or new and accurate descriptions of the Animals, Vegetables and Minerals of the different parts of the world. By John Hill. 3 vols. folio.

Mineralogia, sive Naturalis Philosophiæ Thesaurus. Auctore Bernardus Cæsius. Folio.

Atlas et description Mineralogiques de la France. Par MM. Guettard et Monnet. Folio.

Premiéres feuilles de l'Atlas Mineralogique: ouvrage commencé en 1796 par MM. Guettard et Lavoisier. 4to.

Sixty-one specimens of woods, fourteen
shells, echinoderms and insects, from Texas. Presented
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Dryinus nasutus, Madras. Presented by F. Brown, Jr.

Mounted skeleton of the great extinct Irish elk, (Megaceros hibernicus.) Deposited by Mr. John Abell, of Limerick, Ireland, through Peter Wright & Sons.

Fifty specimens of carboniferous fossils, from Greensburg, Penn. Presented by Dr. A. T. King, through Mr. Cassin.

Tyrannus nepeto; Molothrus sericeus, from Lima, Peru. Presented by Mr. Joseph A. Clay.

Crystalline slag, from an anthracite iron furnace. Presented by Prof. S. S. Haldeman.

A large collection of marine shells from the coast of Lower California. Presented by Dr. A. L. Heermann.

May 10*th.*

Impressions of Encrinites, from Hampshire Co., Virginia. Presented by Dr. Chas. Carter, through Dr. Bridges.

The entire Anatomical Collection of the late Dr. Samuel George Morton, consisting of 867 crania of Man, 601 crania of the inferior animals,* and all the osteological, mummified and other specimens heretofore deposited in the Museum of the Academy, and now presented by the following named gentlemen: Chas. Henry Fisher, Thos. Biddle, Dr. Chas. D. Meigs, Henry J. Williams, Thos. T. Lea, John Farnum, John A. Brown, Wm. Welsh, Dr. George B. Wood, J. Francis Fisher, David S. Brown, John B. Meyers, Lewis R. Ashhurst, Caleb Cope, Richard D. Wood, J. Pemberton Hutchinson, Morris L. Hallowell, Joseph D. Brown, William Platt, Joseph Swift, Singleton A. Mercer, A. J. Lewis, Geo. W. Carpenter, John Price Wetherill, John Cook, John Lambert, Robert Pearsall, Joseph S. Lovering, J. G. Fell, Caspar W. Pennock, Samuel V. Merrick, James Dundas, Henry Pepper, Richard Price, John Grigg, Joseph Jeanes, T. P. Remington, Henry Seybert, Thos. McEwen, Robert Swift, Jacob G. Morris, and Wm. S. Vaux.

May 24*th.*

Larus occidentalis, from Texas, and four eggs of the same. Presented by Dr. Heermann.

Leopardite ——. Presented by Mr. A. Jessup.

Bubo virginianus (mounted.) From Mr. Jas. Mears.

Two specimens of Exogyra costata, from the Chesapeake and Delaware canal. From Mr. George Ord.

June 14*th.*

Fossils from a Prairie, Tippecanoe Co., Indiana. Presented by Dr. C. D. Meigs.

Five coal fossils, from the South Joggins, Nova Scotia. Presented by J. W. Dawson, Esq., of Pictou.

Living specimen of Phrysonoma cornutum, from Texas. Presented by G. W. Page, Esq.

A collection of Reptiles. From Dr. Rand.

A collection of seventy Mammal and Bird Skins from California and Oregon, presented by Col. Geo. A. McCall, as follows:

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Birds: Hypotriorchis columbarius, Tinnunculus sparverius, Elanus leucurus,

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* Catalogue. 3d edition, Philada., 1849.

Circus cyaneus, Athene hypugæa, Chordeiles brazilianus, Trochilus ———, Tyrannus verticalis, Tyrannula nigricans, T. acadica, Ptilogonys nitens, Anthus Ludovicianus, Mimus polyglottis, Icterus Bullockii, Fringilla savanna, F. aurocapilla, F. cinerea, Fringilla, new species, Pipilo fusca, P. arctica, Struthus Oregonus, Carpodacus familiaris, Carduelis tristis, Loxia americana, Melanerpes formicivorus, M. ruber, M. torquatus, Picus Gairdneri, P. Nuttallii, Calipepla californica, C. Gambelii, Tetrao obscurus.

DONATIONS TO LIBRARY

In May and June, 1853.

May 3d.

American Journal of Science and Arts, May, 1853. From the Editors.

Journal d'Agriculture, ou Transactions de la Société d'Agriculture du Bas-Canada. Vol. 6, No. 3. From M. Hugues Latour.

Journal of the Society of Arts, &c., London. Nos. 16 and 17. From the Society.

Annals of Science; conducted by Hamilton A. Smith. No. 12. From the Editor.

A Synopsis, or Systematic Catalogue of the Medicinal Plants of the United States. By A. Clapp, M. D. 8vo. From the author.

Flora Cestrica. By Wm. Darlington, M. D. 3d edition, 8vo. From the author.

Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt, 1850, '51, and 3 Nos. 1852. From the Institution.

Abhandlungen der k. k. Geologischen Reichsanstalt, 1 Band, folio. From the same.

Dr. Wilson presented the following, on the usual condition:

Comptes Rendus. Tome 36, Nos. 9, 10, 11.

Annals de Chimie et de Physique. March, 1853.

The London Athenæum for March, 1853.

Journal für Ornithologie: ein Centralorgan für die gesammte Ornithologie. Herausg. von Dr. J. Cabanis. Heft 1.

Journal of the Franklin Institute. May, 1853.

The following were presented by Mr. Edward Wilson, on the usual condition:

Le Monde, son origine et son antiquité. 2 vols. 12mo.

Torberni Bergman Meditationes de Systemate Fossilium naturali. 12mo.

Martin Thrane Brunnich Mineralogie. 8vo.

Mineralogisches Handbuch. Von Johann Georg Lenz. 8vo.

Handbuch der Mineralogie. Von Dr. G. H. Schubert. 8vo.

Considerations Géologiques et Physiques sur la cause du jaillissement des eaux des puits fores ou fontaines artificiales. Par M. le Vte. Hericart de Thury. 8vo.

De la Cosmogenie de Moise comparée aux faites géologiques. Par Manuel de Serres. 8vo.

Essai d'une Mineralogie Economico-technique des Departemens du Haut- et Bas-Rhin formant la ci-devant Alsace. Par Jean Phillippe Graffenauer. 8vo.

Die Geognosie nach chemischen Grundsatzen dargestellt. Von Carl Schmeider. 8vo.

Lehrbuch der Oryktognosie von Dr. J. Reinhard Blum. 8vo.

Geologische Resultate aus Beobachtungen über einen Theil der Südbaltischen Länder von E. G. F. Wrede. 8vo.

Topografia fisica della Campania di Scipione Breislak. 8vo.

Considerations générales sur les Volcans. Par M. J. Girardin. 8vo.

Sopra una Pioggetta di Sassi accaduta nella sera de' 16. Giugno del 1794 in Lucignan d'Asso nel Sanese dissertazione del P. D. Ambrozio Soldani. 8vo.

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Memoire sur les tremblemens de Terre de la Calabre pendant l'année 1783. Par le Commandeur Deodat de Dolomieu. 8vo.

Descriptions of new species of Achatinella, from the Sandwich Islands. By Dr. W. Newcomb. From the author.

Scientific contributions toward the improvement of Agriculture in Nova Scotia. By J. W. Dawson. From the author.

First Annual Report of the Trustees of the New Bedford City Library. From the Trustees.

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Mounted specimen of the striped Hyena, (H. striata.) Presented by Mr. Edwards.

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Smithsonian Contributions to Knowledge. Vol. 5. 4to. From the Institution.

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Plantæ Fremontianæ. By John Torrey, M. D. From the same.

On the Darlingtonia Californica, a new pitcher-plant. By J. Torrey. From the same.

Synopsis of the Marine Invertebrata of Grand Manan. By Wm. Stimpson. From the same.

Annales de la Société Nationale d'Agriculture, &c. de Lyon. 2e serie, tome 3. From the Society.

Mémoires de l'Académie Nationale des Sciences, &c. de Lyon; Classe des Sciences, nouv. serie, tome 1; Classe des Lettres, nouv. serie, tome 1. From the Academy.

Annales de la Société Linnéenne de Lyon. Ans. 1850–52. From the Society.

Abhandlungen der Mathemat. Physikal. Classe der k. bayer. Akad. der Wissen. 6 Band 2 Abtheil. 4to. From the Academy.

Gelehrte Anzeigen. Herausgeg. von Mitgl. der k. bayer. Akad. der Wissen. Vols. 32, 33. From the same.

Bulletins der k. Akad. der Wissen. Jahrgang 1851. Nos. 1—43. From the same.

Annales des Mines, 4me serie, tome 19, 2e liv. de 1851; tome 20, 6me liv. de 1851; table des matières (4me serie); 5me serie, tome 1, 2e, 4me, et 5me livs. de 1852. From l'Ecole des Mines.

Quarterly Journal of the Geological Society of London. Vol. 9, part 2. From the Society.

Journal of the Indian Archipelago and Eastern Asia. Vol. 9, part 2. From the Editor.

Journal of the Society of Arts, &c. (London.) Nos. 28, 29. From the Society.

Memoirs of the American Academy of Arts and Sciences. New series, vol. 5, pt. 1, and map. From the Academy.

American Journal of Science and Arts, for July, 1853. From the Editors.

Sixty-sixth Annual Report of the Regents of the University of the State of New York. From the Regents.

On the Hive and the Honey Bee, a Bee-Keeper's Manual. By Rev. L. L. Langstroth. 8vo. From the author.

Virginia Medical and Surgical Journal, No. 4, July, 1853. From the Editors.

Nova Acta Acad. C. L. C. Nat. Curiosorum. Vol. 22, pt. 2; et Supplementum. 2 vols. 4to. From the Prince de Wied.

Examination of Fusel Oil from Indian Corn and Rye. By Chas. M. Wetherill, M. D. From the author.

Address on Morbid Anatomy. By J. B. S. Jackson, M. D. From the author.

Annals of Science, No. 16. From the Editor.

Bibliographical Remarks and Reflections on Prof. Carl Lowig's Organic and Physiological Chemistry. By Bennett Dowler, M. D. From the author.

The following were presented by Dr. Wilson, on the usual condition:

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Lehrbuch der Geognosie von Dr. Carl Fried. Naumann. Vol. 1, pts. 1 and 2, vol. 2, and Atlas, pts. 1 and 2.

Testacea novissima quæ Cl. de Saulcy in itinere per Orientem annis 1850 et 1851 collegit. Auctore J. B. Bourguignat.

Die Geographische Verbreitung der Thiere. Von L. K. Schmarda. 3 vols. 8vo.

Instructions pratiques sur la Pisciculture. Par M. Costa. 12mo.

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Observations microscopiques sur les parties de la generation des plantes renfermes dans les fleurs, et sur les insectes qui s'y trouvent. Par. Guil. Fred. Baron de Gleichen. Traduit de l'Allemand par J. F. Isenflamm. Folio.

Die Macht des Kleinen sichtbar in der Bildung der Rinde unseres Erdballs. Von P. Harting. 8vo.

Zeitschrift für Malakozoologie. Von Menke und Pfeiffer. 1853, No. 4.

Comptes Rendus. Tome 36, Nos. 17—22.

History of British Mollusca and their Shells. By Prof. Forbes and S. Hanley. Parts 50 and 51.

The Eggs of British Birds. By J. C. Jennings. 12mo.

London, Edinburgh and Dublin Philosoph. Magazine. Vol. 5, Nos. 34 and 35.

Annals and Magazine of Natural History, June, 1853.

London Athenæum for May, 1853.

Conchologia iconica. By Lovell Reeve. Parts 117, 118, 119.

Journal of the Franklin Institute, July, 1853.

Illustrations of the Birds of California, Texas, &c. By John Cassin. 2d edition, No. 1. 8vo.

July 19th.

Journal of the Society of Arts, (London,) Nos. 30, 31. From the Society.

Memorias de la Real Academia di Ciencias de Madrid. Tomo 1, 3a serie. Ciencias naturales tomo 1, parte 2. 4to. From the Academy.

Resumen de las Actas de la Academia Real de Ciencias de Madrid de 1850 a 1851. From the same.

Catalogue of the Cabinet of Natural History of the State of New York. 8vo. From the Regents of the University of New York.

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London Athenæum for June, 1853.

Brevi Cenni di alcuni resti delle classi Brachiopodi ecc. di G. Michelotti.

Analyse d'une Idiocrase violette de la Vallée d'Ala par Ange Sismonda.

Notice sur les operations enterprises pour determiner la figure de la Terre. Par M. Biot.

Institut Royal de France. Funerailles de M. Alexandre Brongniart.

Versuch zu einer grundlichen Vertheidigung der Saamenthierchen. Von Martin F. Ledermüllern.

August 2d.

Proceedings of the Boston Society of Natural History. Vol. 4, pp, 289-304. From the Society.

Annals of the Lyceum of Nat. History of New York. Vol. 6. No. 1. From the Lyceum.

Charleston Medical Journal and Review. July, 1853. From the Editors.

Biographical Notice of Daniel Drake, M. D., of Cincinnati. By Charles D. Meigs, M. D. From the Author.

Revue et Magasin de Zoologie, 1853. Nos. 1—5. From Dr. Wilson.

Annales des Sciences Naturelles. Tome 19, 3me serie. Zoologie Nos. 1—2. From the same.

Annales de Chimie et de Physique. 3me serie, tome 37, tome 38, Nos. 1—2. From the same.

Comptes Rendus. Tome 36. Nos. 23, 24, 25. From the same.

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The following were presented by Mr. Edward Wilson on the usual condition

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Lettres sur la Mineralogie et sur divers autres objets de l'histoire naturelle de l'Italie ecrités par M. Ferber a M. de Born. Ouvrage traduit de l'Allemand par M. de Dietrich. 8vo.

Die erloschenen Vulkane in der Erfel und am Niederrheine. Von J. Steininger. 8vo.

Principes de Mineralogie. Par J. P. Vanderchem-Berthout et H. Struve. 8vo.

Mineralogisches Handlexicon. Von Prof. J. R. Zappe. 8vo.

Cours de Mineralogie. Par N. Jolyclerc. 8vo.

Ornitologia Silesiaca. Von August Kaluza. 12mo.

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Entretiens sur la Minéralogie, d'apres la méthode du célébre Haüy. Par A. Tardieu. 8vo.

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Essai sur l'histoire naturelle des Roches. Par M. de Launay. 8vo.

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Tentamen Mineralogicum. Auctore J. Kickx. 8vo.

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B. J. Gustav Karstens kurzer entworf der Naturwissenschaft vornemlich ihres chymisch-mineralogischen Theils. 12mo.

Dictionnaire Mineralogique et Hydrologique de la France. 4 vols. 12mo.

August 16th.

Journal of the Society of Arts, of London, Nos. 32, 33, 34. From the Society.

Annals of Science. No. 17. From the Editor.

Virginia Medical and Surgical Journal. No. 5. August, 1853. From the Editors.

Abhandlungen der Mathemat. Physikal. Classe der K. bayer. Akad. der Wissen. 6 Band, 3 Abtheil. From the Academy.

Bulletin der K. Akad. der Wissen. 2 Jan 1852—9 Juin 1852. From the same.

Gelehrte Anzeigen. Herausg. von Mitgl. der K. bayer. Akad. der Wissen. 34 Band. From the same.

Deutschlands Flora, mit Abbildungen Sämmtlicher Gattungen und Untergattungen von Dr. W. D. Peterman. Royal 8vo. From Dr. Wilson.

Comptes Rendus. Tome 36, No. 26, tome 37, No. 1. From the same.

Journal of the Franklin Institute for August, 1853. From the same.

August 23d.

Annales des Mines. 5me serie, tome 2; 6 liv. de 1852, tome 3, 1 liv. de 1853. From l'Ecole des Mines.

Description of some species of the extinct genus Nesodon. By Prof. Owen. From the Author.

Dr. Wilson presented the following, on the usual condition:

Der Mensch und die Natur. Von Friedrich Korner. 8vo.

Reisen in Mexico in den Jahren 1845—1848. Von Carl Barthol. Heller. 8vo.

Revue et Magasin de Zoologie, 1853. No. 6.

Annales des Sciences Naturelles. 3me serie, tome 19. No. 4.

Comptes Rendus, tome 37, Nos. 2 and 3.

Bonplandia Zeitschrift für angewandte Botanik. 1 Jahrgang. Nos. 1—14. Jan.—Juli, 1853.

Systeme Silurien du centre de la Boheme. Par Joachim Barrande. 1me partie. Vol. 1. Crustaces. Trilobites. 4to and Atlas 4to.

Ueber die fossilen Reste der Zeuglodonten von Nordamerica. Von Joh. Muller. Folio.

DONATIONS TO MUSEUM

In September and October, 1853.

September 13*th.*

Twenty-eight specimens of Fossils from Illinois. From Mr. L. W. Germais.

October 4*th.*

Specimens of Zinc Ore, from Bethlehem, Pennsylvania. From Mr. Alfred Creot.

Sixteen specimens of Fruits and Seeds, from the East Indies. From Ellis Yarnall, Jr.

October 11*th.*

Plestiodon quinquelineatus, and young of Heterodon platyrhinus, from Pemberton, New Jersey. Presented by Dr. E. Hallowell.

Young of Heterodon platyrhinus. Presented by Dr. Hartshorne.

Coronella getula, from New Jersey. Presented by B. Badger and P. Doyle, of Philadelphia county.

Thirty-six specimens of Marine Algæ, from Newport and New Haven. Presented by S. Ashmead.

October 18*th.*

Fruit of Hura strepens, Texas. From R. P. Thomas, M. D.

Several specimens of Yellow Perch with entozoon sacs upon the exterior surface. From Cold Pond, Charlestown, New Hampshire. From Dr. Weber, of Charlestown.

DONATIONS TO LIBRARY

In September and October, 1853.

September 13*th.*

Voyage Geologique aux Antilles et aux Iles de Teneriffe et de Fogo. Par Ch. St. Claire Deville. 4to. and Atlas 4to. From Prof. Frazer.

A quarto volume of Tracts on subjects of Natural History, Natural Philosophy, &c. From the same.

Documentary History of the American Revolution, consisting of papers relating to the contest for Liberty, chiefly in South Carolina in 1781–2. By R. W. Gibbes, M. D. 8vo. From the Author.

Bibliographia Americana historico-naturalis, An. 1851. By Charles Girard. 2d edition. From the Author.

Virginia Medical and Surgical Journal, No. 6. September 1853. From the Editors.

Charleston Medical Journal and Review. September, 1853. From the Editors.

American Journal of Science and Arts. September, 1853. From the Editors.

Annals of Science. No. 18. From the Editor.

Dr. Wilson presented the following, on the usual condition :—

Annals and Magazine of Natural History, for July and August, 1853.

London, Dublin and Edinburgh Philosophical Magazine, for July and August, 1853.

Annals of Anatomy and Physiology. By John Goodsir. No. 3.

London Athenæum for July and August, 1853.

Quarterly Journal of Microscopical Science.

Conchologia Iconica. By Lovell Reeve. Part 120.

Annals de Chimie et de Physique. 3me serie. July, 1853.

Bonplandia. Zeitschrift für die gesammte Botanik. Jahrgang No. 15.

Comptes Rendus. Tome 37. Nos. 4, 5, 6.

L'organisation du Regne Animal. Par Emile Blanchard. Livs. 3, 4, 5, 6.

The following were presented by Dr. Wilson on the usual condition:

Odontographie. Vergleichende Darstellung des Zahnsystemes der lebenden und fossilen Wirbelthiere von C. G. Giebel. 2 lief, 4to.

Rudolph Wagner's Icones Physiologicæ. 1te und 2te lief.

Comptes Rendus. Tome 37. Nos. 13, 14, 15.

Annales de Chimie, Sept. and Oct., 1853.

Revue et Magasin de Zoologie, 1853, No. 9.

Journal of the Franklin Institute, Nov., 1853.

December 6th.

The Virginia Medical and Surgical Journal, Nov., 1853. From the Editors.

Annual Report of the Superintendent of the Coast Survey for the year ending Nov., 1851. 8vo. and Atlas 4to. From the U. S. Treasury Department.

The Charleston Med. Journal and Review, Nov., 1853. From the Editors.

Journal of the Society of Arts (London,) Nos. 43—47. From the Society.

Index polyglossus Avium et Piscium magis communium. From Dr. F. Bache.

Verhandlungen des zoologisch-botanischen Vereins in Wien. Vols. 1 and 2 8vo. From the Association.

Histoire physique, politique et Naturelle de l'Ile de Cuba. Par M. Ramon de la Sagra. Livs. 62—72. From Messrs. Vaux, Elwyn, Clay and Carpenter.

Annales des Sciences Naturelles. 3me serie. Zoologie, Tomes 15, 16, 17, 18; Botanique, Tomes 15, 16, 17, 18. From Dr. Wilson.

December 13th.

The U. S. Grinnell Expedition in search of Sir John Franklin. A personal narrative. By E. K. Kane, M. D. 8vo. From the Author, through the Hon. J. K. Kane.

Eloge Historique d' Etienne Geoffroy St. Hilaire. Par M. Flourens. From the author, through Mr. Isaac Lea.

List of Infusorial objects, found chiefly in the vicinity of Salem, Mass. By Thomas Cole, A. M. From Mrs. Cole.

a l'Academie Royale des Sciences de Stockholm. Par J. Berzelius. 1841 to 1848. 6 vols. 8vo. From Dr. C. M. Wetherill.

Proceedings of the Berwickshire Naturalists' Club. Vol. 3, No. 3.

Zeitschrift für Malakozoologie. Von K. T. Menke, M. D., und Dr. L. Pfeiffer. 1853, No. 7. From Dr. Wilson.

Illustrations of the Birds of California, Texas, &c., No. 2. By John Cassin. From the same.

November 15th.

Memoires de la Société Royale des Sciences de Liege. Vol. 8, 8vo. From the Society.

Annals of Science, No. 22. From the Editors.

November 22d.

Die Kechua-Sprache von J. J. von Tschudi. 2 vols. 8vo. From the Author.

Die Huanulager an der peruanischer Küste. Von J. J. v. Tschudi. From the same.

Berichte über die Verhandlungen der König. Sächsischen Gesellschaft der Wissen. zu Leipzig. Mathemat-Phys. Classe. 1849—52, No. 1, 1853. From the Society.

Abhandlungen der Mathemat-Phys. Classe der K. Sächsischen Gesellschaft der Wissenschaften. 1 band 4to. From the Society.

Jahrbuch der kaiserlich. königlichen geologischen Reichsanstalt. 1842, No. 4. From the Institute.

Sitzungsberichte der Mathemat-Naturwissen. Classe der K. Akad. der Wissen. 10 band, 4—5 Heft. From the Academy.

Zeitschrift der deutschen geologischen Gesellschaft. 5 band, 1 heft. 8vo. From the Society.

Oversigt over det Kgl. danske Videnskabernes Selskabs Forhandlingar eg dets Medlemmers Arheider i Aaret 1852. 8vo. From the Society.

Ueber die ewigen Gesetze der Natur die Einfachheit, die Einheit und das allmähliche Uebergehen besonders in der Mineralogie, Geologie, &c., Von Dr. Ami Boué. From the Author.

Also, from the same donor, the following:

Ueber die jetzige Palæontologie und die Mittel, diese Wissenschaft zu heben. Von Dr. Ami Boué.

Ueber die Karten der Gebirge und Thäler-Richtungen. Von Dr. A. Boué.

Erläuterungen über die im Löss des Rheinthales im Jahre 1823 aufgefundenen Menschenknochen. Von Dr. A. Boué.

Ueber die Umgekehrte Lagerung der Gebirgsmassen. Von Dr. A. Boué.

Ueber das Erdbeben, welches Mittel Albanien im Oct. D. I. So Schrecklich getroffen hat. Von Dr. A. Boué.

Ueber die Nothwendigkeit die Erdbeben und vulcanischen Erscheinungen genauer als bis jetzt beobachten zu lassen. Von Dr. A. Boué.

Ueber die wissenschaftliche und praktische Wichtigkeit einer genauen geognostischen Aufnahme aller grossen Durchbrüche. Von Dr. Ami Boué.

Vortrag des W. M. Hernn Dr. Boué, in der Sitzung der Math. Naturwissen. Classe am 30 Jan., 1851.

Der ganze Zweck und der hohe Nutzen der Geologie. Von Dr. A. Boué.

Retrospective über die verschiedene Charakteristik der mechanischen Ablagerungen der Flüsse, der Süsswasser-Seen und der Meere, besonders in der Alluvial-Zeit. Von Dr. A. Boué.

Esquisse Geologique de la Turquie d'Europe. Par A. Boué.

Bemerkungen über sein Werk la Turquie d'Europe, von Dr. Boué.

Beiträge zur Kenntniss der Gefässkryptogamen von W. Hoffmeister.

Ueber die Musikalische Tonbestimmung und Temperatur. Von M. W. Drobisch.

Entwickelung des Products einer Potenz des Radius Vectors, &c. Von P. A. Hansen.

Württembergische naturwissenschaftliche Jahreshefte. 9ter Jahrgang. 2 und 3 heft. From the Society.

Vorwort zum vierundzwanzigsten Bande der Verhandlungen der K. Leopold, Carolin. Akad. der Naturforscher. From the Academy.

Denkschriften der k. Akad. der Wissenschaften. Mathemat-Naturwissen. Classe. Vol. 3, No. 2, Vol. 4., No. 2. From the Academy.

Sitzungsberichte der k. Akad. der Wissen. Mathemat-Naturwissen. Classe. Vol. 8, Nos. 4 and 5, vol. 9, Nos. 1 and 2. From the same.

Die Feierliche Sitzung der k. Akad. der Wissen. Am 29, Mai, 1852. From the same.

Abhandlungen der Mathemat-Physikal. Classe der k. bayerischen. Akad. der Wissen. 7th vol., No. 1. From the Academy.

Gelehrte Anzeigen. Herausg. von Mitgl. der. k. bayer. Akad. der Wissen. Band 35. From the same.

Bulletin der k. Akad. der Wissen. 27 Aug.—6 Sept., 1852. From the same.

Ueber den Chemismus der Vegetation. Von Dr. A. Vogel, Jr. From the same.

Das physische Leben in popularen Vorträgen. Von Dr. Dan., Fr. Eschricht. 2 Vols. 8vo. From the Author.

Zeitschrift der deutschen geologischen Gesellschaft. Vols. 1—4. Erom the Society.

Biographical and Historical Memoirs of the early Pioneer Settlers of Ohio. By S. P. Hildreth, M. D. 8vo. From the Author.

Report of Israel D. Andrews on the Trade and Commerce of the British North American Colonies, &c. (U. S. Senate Doc., No. 112.) 8vo. and maps. From the Author.

On the Venomous Serpents of Georgia. By John Le Conte, M. D. From the Author.

Proceedings of the American Philosoph. Society. Jan. to June, 1853. From the Society.

The following were presented by Dr. Wilson on the usual condition.

Monograph of the Trochilidæ. By John Gould. Parts 5 and 6. Folio.

Monograph of the Rhamphastidæ. By John Gould. Part 3. Folio.

The Birds of Asia. By John Gould. Part 5. Folio.

Fortpflanzungsgeschichte der gesammten Vögel. Von F. A. L. Thienemann. Nos. 7, 8 and 9. 4to.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Von W. Dunker und H. Von Meyer. 3 band, 4 lief. 4to.

Comptes Rendus. Tome 37. Nos. 11, 12.

London Athenæum for September, 1853,

Quarterly Journal of Microscopical Science. Vol. 2, No. 1.

London, Edinburgh and Dublin Philosophical Magazine for October, 1853.

Annals and Magazine of Natural History for October, 1853.

Monographia Heliceorum Viventium. Auctore Dr. L. Pfeiffer. Vol. 3, 8vo.

The native races of the Indian Archipelago. Papuans. By George Windsor Earl. 8vo.

Ueber die vulkanischen Gesteine in Sicilien und Island. Von W. Sartorius von Waltershausen. 8vo.

Mikroskopische Bilder. Naturansichten aus dem kleinsten Raume. Von Dr. H. Klencke. 8vo.

Bonplandia. Nos, 16, 17, 18.

November 8th.

Journal of the Society of Arts of London. Nos. 38—42. From the Society.

Transactions of the Linnean Society of London. Vol. 21, Part 2, 4to; Proceedings of the same, Nos. 49 to 51; List of the Society for 1852. From the Society.

American Journal of Science and Arts, Nov. 1853. From the Editors.

Rapport annuel sur les progres des Sciences Physiques et Chimiques, presenté from Carlisle; Heterodon platyrhinos, from Virginia; H. simus, from Abbeville, S. C.; Scottophis guttatus, from Mississippi; Ophibolus Sayi, from Prairie mer Rouge; Bascanion constrictor, from Carlisle, Pa.; Leptophis aestivus, from Mississippi; L. majalis, from Eagle Pass; Chlorosoma vernalis, from Westport, N. Y.; Diadophis punctatus, from Carlisle, Pa.; Haldea striatula, from Richmond, Va.; Farancia abacurus, from Prairie Mer Rouge; Abastor erythrogrammus, from Savannah, Ga.; Virginia valeriæ, from Anderson, S. C.; Celuta amœna, from Carlisle; Storeria DeKayi, Pittsburg, Pa.; S. occipito-maculata, from Anderson, S. C.

Specimens of Crawfishes.—Cambarus Bartonii, from Coxackie, N. Y.; C. montanus, from James river, Va.; C. robustus, from Humber River, Toronto; C. diogenes, from District of Columbia; C. Pealei, from Potomac; C. propinquus, from Garrison Creek, Sackett's Harbor; C. Blandingii, from Charleston, S. C.; C. acutissimus, from Kemper Co., Miss.

December 13th.

Specimen of Pholas dactylus, Lam., in bored Gneiss; from the Coast of France. From Mr. Isaac Lea.

Egg of the common fowl, of singular irregular form. From Mr. Phillips.

Mounted specimen of Accipiter Cooperi. From Mr. John Krider.

Specimen of Atelas hybridus, Geoff. From the same.

December 20th.

Cast of the Egg of Epiornis, of the Island of Madagascar. Presented by Dr. J. C. Warren, of Boston.

Tooth of Carcharias megalodon, from the marl of New Jersey. From Dr. G. Watson.

Mounted specimen of Vulpes fulvus, from the Eastern shore of Maryland. From Messrs. J. Le Conte, B. H. Rand, S. Ashmead and Zantzinger.

Singular mass of Oak Wood, found in a stream of water; the ligneous fibres of which have been washed out, leaving the medullary rays almost entire. From Rev. W. G. Agnew.

Two fragments of fossil mammals represented as coming from China, (Himalayas?) From Dr. Isaac Hays.

Buteo vulgaris. In exchange from the Wisconsin Natural History Society.

DONATIONS TO LIBRARY

In November and December, 1853.

November 1st.

Proceedings of the Royal Society of Edinburg, Session 1851-2. Vol. 3, No. 42. From the Society.

Quarterly Journal of the Geological Society of London. No. 35. From the Society.

Journal of the Indian Archipelago and Eastern Asia. Vol. 7, No. 1. From the Editor.

Lord Wrottesley's speech in the House of Lords, 26th April, 1853, on Lieut. Maury's plan for improving Navigation. From the author.

Ueber die Luchsarten des Nordens und ihre geographische Verbreitung. Von Leopold Schrenk. From Prof. Ed. Grube, of Dorpat.

Zur Jubelfeier der K. Universität Dorpat am 12ten und 13ten, Dec., 1852. From the same.

Beschreibung der auf A. Th. v. Middendorff's Sibirischer Reise gesammelten Parasiten. Von Dr. E. Grube. From the author.

Synopseos Crustaceorum Prussicorum Prodromus. Auctore E. G. Zaddach From Dr. E. G. Grube.

Uebersicht des obern Silurischen Schichten-Systems Liv. und Ehstlands, vornämlich ihrer Inselgruppe. 1er Theil. Von Alex. Gustav. Schrenk. From the same.

Essai historique et politique sur la race des Brebis a laine fine. Par M. Claude Alstrom. 12mo.

Ausfürliche Geschichte des Hunde, &c. 8vo.

Physikalische Erdbeschreibuug von Ludwig Mitterpacker. 8vo.

Die Erdbeben und Vulkane, physisch und historisch betrachtet. Von B. G. Walther. 8vo.

Histoire et Phénomènes du Volcan et des Iles Volcaniques de Santorin. Par M. l'Abbe Pégues. 8vo.

De l'art du Fontenier, Sondeur, et des Puits Artésiens. Par F. Garnier. 4to.

Des Vaters Josephs Torrubia Vorbereitung zur Naturgeschichte von Spanien. 4to.

Il Vesuvio poemetto storico fisico del P. Atanagio Cavalli Carmelitano. 8vo.

L'Art d'elever les Vers a soie; ouvrage de M. le Conte Dandolo. 8vo. 3me edition.

Wegweiser durch die Gegend um Eilsen. Von Wilhelm Strach. 8vo.

Museum Astronomique, Geologique et Zoologique. Par M. Cochet. 4to.

V. L. Brera medicinisch-practische Vorseleinque über die vornehmsten Eingeweidewürmer des Menschlichen lebenden Korpers und die sogenannten Wurmkrankheiten. 4to.

Recherches sur la formation et l'existence des Ruisseaux, Rivières et Torrens, qui circulent sur la globe Terrestre. Par M. le Creulx. 4to.

Œuvres d'Agriculture de M. de Planazee. 4to.

Memoires de Physique sur l'art de fabriquer le fer, &c. Par M. Grignore. 4to.

Meditations sur l'origine des Fontaines, l'eau des Puits, &c. Par M. Kuhn. 4to.

Dei Fuimi e dei Torrenti libri tre del. P. D. Paoli Frisi Bernabita. 4to.

Explication du flux et reflux dans leurs veritables circonstances.

Essai sur la Marine des Anciens. Par M. Deslandes. 12mo.

Histoire Nationale et Dictionnaire Geographique de toutes les Communes du Department de la Loire Inférieure. Par Girault de St. Fargeau. 8vo.

DONATIONS TO MUSEUM

In November and December, 1853.

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Transition Rock, from the Pyrenees. Presented by Dr. Hallowell.

Aboriginal Cranium, from South Carolina. From Dr. R. W. Gibbes, of Columbia, S. C.

Specimens of colored clay, dredged from the River Delaware, below Philadelphia. From Capt. Marston, U. S. Navy.

Mounted specimen of Balistes fuliginosus, from the Atlantic Coast, near Newport, R. I. From Mr. S. Powel.

November 8th.

Fragment of the lower jaw of Bathygnathus borealis, Leidy, from the New Red Sandstone Formation of Prince Edward's Island. Presented by Dr. Leidy, Mr. Isaac Lea and Mr. Vaux.

Egg of Struthio camelus. From Mr. John Merrick, of Hallowell, Maine.

Specimens of Cicada Septendecim, collected near Baltimore in 1834, and presented by Mr. O. A. Norris.

December 6th.

The following were presented by the Smithsonian Institution:—

Serpents.—Crotalus durissus, from Prairie Mer Rouge, La.; Crotalophorus miliarius, Charleston, S. C.; C. Kirtlandii, from Warren Co., Ohio; Agkistrodon contortrix, from Foxburg, Pennsylvania, and Louisiana; Elaps fulvius, from Charleston, S. C.; Eutænia saurita, from Carlisle, Pa.; E. Faireyi, from Prairie mer Rouge, La.; E. ordinata, from Georgia; E. marciana, from New Braunsfels, Texas; Nerodia sipedon, from Carlisle, Pa.; N. Woodhousii, from New Braunsfels, Texas; N. Holbrookii, from Prairie, Mer Rouge, La.; Regina leberis, Journal of the Franklin Institute for September, 1853.

A Synopsis of the British Diatomaceæ. By the Rev. William Smith. Vol. 1. 8vo.

Beobachtungen über Verjüngsvorgängeim thierischen Organismus. Von Hermann Stannius.

Beiträge zur mikroskopischen Anatomie und Physiologie des Ganglien-Nervensystems des Menschen und der Wirbelthiere. Von Carl Axmann, D. M.

Museum Heineanum. Von Dr. Jean Cabanis. 1 Thiel. die Singvogel enthaltend. 8vo.

Grundzüge der Botanik, entworfen von S. Endlicher und Franz Unger. 8vo.

Botanische Briefe. Von Dr. F. Unger. 8vo.

De Spermatozoorum introitu in ovula. Autore Gott. Aug. F. Keber.

Entwickelungsgeschichte des Meerschweinchens. Von Th. Ludw. W. Bischoff.

Odontographie. Vergleichende Darstellung des Zahnsystemes der lebenden und fossilen Wirbelthiere von C. G. Giebel. 1 Lief. 4to.

Vestiges of the Natural History of Creation. 10th edition. 8vo.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Herausg. von W. Dunker und H. Von Meyer. 2 band, lief. 3, 4 ; 3 band, lief. 2, 3.

Naumannia. Archiv für die Ornithologie, vörzugsweise Europas. Von E. Baldanus. 2 band. 2 und 3 heft, 1853.

Schreber, "die Saugethiere." Fortgesetzt von Wagner. Supplementband. 5 Abtheil. 4to.

The Cyclopædia of Anatomy and Physiology. By Robert B. Todd, M. D. 4 vols. Royal 8vo.

October 4th.

A collection of Tables and Formulæ useful in Surveying, Geodesy and practical Astronomy. By Capt. T. J. Lee, Topograph. Eng. U. S. A. 2d edition. 8vo. From Col. J. J. Abert.

Mathematics simplified and made attractive, &c. By Thomas Fisher. 8vo. and Atlas folio. From the Author.

Annals of the Lyceum of Natural History of New York. Vol. 5. No. 6. From the Lyceum.

Annals of Science. No. 19. From the Editor.

Verhandlungen der Russisch-Kaiserlichen Mineralogischen Gesellschaft zu St. Petersburg. 1842 to 1849. 6 vols. From the Society.

Schriften der in St. Petersburg gestifteten Russisch-Kaiserlichen Gesell. fur die gesammte Mineralogie. Vol. 1. Parts 1 and 2. 2 vols. 8vo. From the same.

October 11th.

Dr. Wilson presented the following, on the usual condition :

London, Edinburgh and Dublin Philosophical Magazine. September, 1853.

Annals and Magazine of Natural History for September, 1853.

Revue et Magasin de Zoologie. 1853. Nos. 7 and 8.

Annals de Chimie et de Physique. 3me serie. August, 1853.

Annales des Sciences Naturelles. 3me serie. Tome 19. No. 5.

Comptes Rendus. Tome 37. Nos. 7, 8, 9.

Journal of the Franklin Institute for October, 1853.

October 18th.

Report of the Commissioner of Patents for the year 1851. 2 vols. 8vo. From the Patent Office.

Memoirs of the Historical Society of Pennsylvania. Vols. 3 and 4, 8vo. From the Society.

Virginia Medical and Surgical Journal for October, 1853. From the Editors.

Annals of Science. No. 20. From the Editors.

The following were presented by Mr. Edward Wilson, on the usual condition:

Versuche über die Insecten. Von Carl August Schmid. 1 thiel. 12mo.

Les Abeilles : traduit de l'Italien de J. Rucellai par M. Pingeron. 12mo.

CATALOGUE

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OLOGICAL COLLECTION

IN

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

BY

A. L. HEERMANN, M. D.

MARCH 1, 1853.

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Archibuteo lagopus (Brün.) France. From Mons. Des Murs' Collection.

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“ Novæ Hollandiæ (Gmel.) Australia. From the same.
“ atricapillus (Wilson.) Mass. Presented by T. B. Wilson, M. D.
Accipiter nisus (Linn.) France. From Mons. Des Murs' Collection.
“ rufiventris Smith. S. Africa. From the same.
“ fuscus (Gmel.) N. Jersey. Presented by Mr. J. Krider.
“ Cooperii (Pr. Bonap.) Penn. Presented by C. Pickering, M.
“ cruentus (Gould.) Australia. From Mr. J. Gould's Collecti
“ approximans (Vig. and Horsf.) Australia. From the same.

Melierax canorus (Thunb.) S. Africa. From Mons. Des Murs' Collec

Serpentarius reptilivorus Daud. S. Africa. From the same.

Circus cyaneus (Linn.) France. From the same.
“ æruginosus (Linn.) France. From the same.
“ cinerascens (Mont.) France. From the same.
“ uliginosus (Gmel.) Missouri. Presented by A. L. Heermann,
“ assimilis Jard. and Selby. Australia. From Mr. J. Gould's Colle
“ Jardinii Gould. Australia. From the same.
“ ranivorus (Daud.) S. Africa. Presented by Mr. E. Wilson.
“ maurus (Temm.) Tangier. From Mons. Des Murs' Collection

III. Family STRIGIDÆ.

Strix flammea Linn. France. From Mons. Des Murs' Collection.
" " Algiers. From the same.

Otus vulgaris Fleming. France. From the same.
" brachyotos (Gmel.) Labrador. From the same.

Syrnium aluco (Linn.) France. From the same.
" nebulosum (Gmel.) U. States. From the same.

Nyctale funerea (Linn.) France. From the same.

Bubo maximus Sibb. France. From the same.
" virginianus Briss. Maryland. Presented by A. L. Heermann, M. D.
" ascalaphus Savigny. Africa. From Mons. Des Murs' Collection.
" maculosus (Vieill.) Africa. From the same.

Ephialtes scops (Linn.) France. From the same.
" asio (Linn.) Pennsylvania. Presented by S. W. Woodhouse, M. D.

Nyctea nivea (Daud.) Arctic America. From Mons. Des Murs' Collection.

Athene noctua (Retzius.) France. From the same.
" nana (Vigs.) S. America. From the same.
" siju D'Orb. Cuba. From Mons. La Sagra's Collection.
" cuculoides (Vig.) India. Presented by T. B. Wilson, M. D.
" Brodiei (Burt.) India. Presented by Mr. E. Wilson.
" boobook (Lath.) Australia. From Mr. J. Gould's Collection.

Surnia ulula (Linn.) Arctic America. From Mons. Des Murs' Collection.

2d Order PASSERES.

I. *Tribe* FISSIROSTRES.

I. Family CAPRIMULGIDÆ.

Steatornis caripensis Humboldt. New Grenada. From Mons. Des Murs' Collection.
" " S. America. From the same.

Podargus Cuvieri Vig. and Horsf. Australia. From Mr. J. Gould's Collection.
" brachypterus Gould. Australia. From the same.
" humeralis Vig. and Horsf. Australia. From the same.

Ægotheles Novæ Hollandiæ (Lath.) Australia. From the same.

Caprimulgus Europæus Linn. France. From Mons. Des Murs' Collection.
" affinis Horsf. Sumatra. From the same.

Nyctibius leucopterus (De Wied.) S. America. From the same.

Chordeiles virginianus (Briss.) Virginia and Pa. From the same.

Lurocalis leucopygius (Spix.) Paraguay. From the same.

Eurostopodus albogularis (Vig. and Horsf.) Australia. From Mr. J. Gould's Collection.
" guttatus (Vig. and Horsf.) Australia. From the same.

Stenopsis hirundinaceus (Spix.) Paraguay. From. Mons. Des Murs' Collection.

Antrostomus vociferus (Wilson.) N. Jersey. Presented by Mr. S. Ashmead.

Haliastur leucosternus (Gould.) Australia. From Mr. J. Gould's Collect
" sphenurus (Vieill.) Australia. Ditto.
" indus (Bodd.) India. Presented by T. B. Wilson, M.D.

Falco gyrfalco Linn. Iceland. From Mons. Des Murs' Collection.
" peregrinus Linn. France. From the same.
" " Saxony. From the same.
" " Great Britain. From the same.
" melanogenys Gould. Australia. From Mr. J. Gould's Collection.

Hypotriorchis subbuteo (Linn.) France. From Mons Des Murs' Colle
" " Germany. From the same.
" æsalon (Gmel.) France. From the same.
" Eleanoræ (Gené.) Italy. From the same.
" " Algiers. Presented by Mr. E. Wilson
" frontatus (Gould.) Australia. From Mr. J. Gould's Colle

Ieracidea berigora (Vigs. and Horsf.) Australia. From the same.
" occidentalis Gould. Australia. From the same.

Tinnunculus alaudarius (Briss.) West Africa. From Mons. Des
Collection.
" " Hungary. From the same.
" " France. From the same.
" " Great Britain. From the same.
" tinnunculoides (Natt.) Spain. From the same.
" " Greece. From the same.
" rupicolus (Daud.) S. Africa. From the same.
" rupicoloides (Smith.) S. Africa. From the same.
" vespertinus (Linn.) Greece. From the same.
" cenchroides (Vig. and Horsf.) Australia. From Mr. J. G
Collection.
" sparverius (Linn.) Cuba. From Mons. La Sagra's Collect

Pernis apivorus (Linn.) France. From Mons. Des Murs' Collection.

Milvus regalis Briss. France. From the same.
" ater (Gmel.) Greece. From the same.
" " W. Africa. From the same.
" isurus Gould. Australia. From Mr. J. Gould's Collection.
" cheela (Lath.) India. Presented by Mr. E. Wilson.

Elanus melanopterus (Daud.) Egypt. From Mons. Des Murs' Collect

Astur palumbarius (Linn.) France. From the same.
" Novæ Hollandiæ (Gmel.) Australia. From the same.
" atricapillus (Wilson.) Mass. Presented by T. B. Wilson, M.

Accipiter nisus (Linn.) France. From Mons. Des Murs' Collection.
" rufiventris Smith. S. Africa. From the same.
" fuscus (Gmel.) N. Jersey. Presented by Mr. J. Krider.
" Cooperii (Pr. Bonap.) Penn. Presented by C. Pickering, M
" cruentus (Gould.) Australia. From Mr. J. Gould's Collecti
" approximans (Vig. and Horsf.) Australia. From the same.

Melierax canorus (Thunb.) S. Africa. From Mons. Des Murs' Colle

Serpentarius reptilivorus Daud. S. Africa. From the same.

Circus cyaneus (Linn.) France. From the same.
" æruginosus (Linn.) France. From the same.
" cinerascens (Mont.) France. From the same.
" uliginosus (Gmel.) Missouri. Presented by A. L. Heermann,
" assimilis Jard. and Selby. Australia. From Mr. J. Gould's Coll
" Jardinii Gould. Australia. From the same.
" ranivorus (Daud.) S. Africa. Presented by Mr. E. Wilson.
" maurus (Temm.) Tangier. From Mons. Des Murs' Collection

II. *Tribe TENUIROSTRES.*

I. Family UPUPIDÆ.

Upupa epops Linn. France. From M. Des Murs' Collection.

II. Family PROMEROPIDÆ.

Nectarinia famosa (Linn.) Africa. From M. Des Murs' Collection.
" minima (Sykes.) Africa. From the same.

Dicæum hirundinaceum (Lath.) Australia. From Mr. J. Gould's Collection.

Certhiola flaveola (Linn.) Guadeloupe. From M. Des Murs' Collection.

III. Family TROCHILIDÆ.

Phætornis superciliosus (Linn.) Brazil. From M. Des Murs' Collection.

Polytmus jugularis (Linn.) Martinique. Presented by T. B. Wilson, M. D.
" simplex (Less.) Brazil. From M. Des Murs' Collection.
" brevirostris (Less.) Brazil. From the same.
" corallirostris (Bourc. and Muls.) Brazil. From the same.

Topaza pella (Linn.) Brazil. From the same.

Calothorax lucifer (Swains.) Brazil. From the same.

Mellisuga Alexandri (Bourc. and Muls.) California. Presented by A. L. Heermann, M. D.
" minima (Swains.) Jamaica. From M. Des Murs' Collection.
" moschita (Linn.) Guiana. From the same.
" cristata (Linn.) Brazil. From the same.
" Delalandii (Vieill.) Brazil. From the same.
" amethystina (Gmel.) Brazil. From the same.

Hylocharis cærulea (Vieill.) N. Grenada. From the same.
" sapphirina (Gmel.) Brazil. Presented by T. B. Wilson, M. D.
" cyanogenys (Pr. Max.) Brazil. From the same.
" prasina (Less.) Guiana. From M. Des Murs' Collection.

IV. Family MELIPHAGIDÆ.

Entomophila albigularis Gould. Australia. From Mr. J. Gould's Collection.
" rufigularis Gould. Australia. From the same.

Glyciphila albifrons Gould. Australia. From the same.
" ocularis Gould. Australia. From the same.
" melanops (Lath.) Australia. From the same.

Acanthorynchus tenuirostris (Lath.) Australia. From the same.
" superciliosus Gould. Australia. From the same.

Meliphaga phrygia (Lath.) Australia. From the same.
" ornata Gould. Australia. From the same.
" plumula Gould. Australia. From the same.
" sonora Gould. Australia. From the same.
" flavigula Gould. Australia. From the same.
" Novæ Hollandiæ (Lath.) Australia. From the same.
" Australasiana (Shaw.) Australia. From the same.
" mysticalis Gould. Australia. From the same.
" longirostris Gould. Australia. From the same.

II. Family HIRUNDINIDÆ.

HIRUNDO RUSTICA Linn. France. From M. Des Murs' Collection.
“ RUFA Vieill. Pennsylvania. From the same.
“ FRONTALIS Quoy and Gaim. Australia. From Mr. J. Gould's Collection.
“ NIGRICANS Vieill. Australia. From the same.
“ ARIEL (Gould.) Australia. From the same.
“ LUNIFRONS Say. Rocky Mountains. Presented by A. L. Heermann, M. D.
“ BICOLOR Vieill. Maryland. From the same.
“ ALBIVENTER Bodd. Paraguay. From M. Des Murs' Collection.
“ CYANOLEUCA Vieill. Chili. From the same.

CYPSELUS MELBA (Linn.) France. From the same.
“ APUS (Linn.) France. From the same.
“ CAYENNENSIS (Gmel.) Paraguay. From the same.

MACROPTERYX KLECHO (Raffl.) Java. From the same.

COLLOCALIA NIDIFICA (Lath.) Java. From the same.
“ FUCIPHAGA (Thunb.) Java. From the same.

ACANTHYLIS PELASGIA (Linn.) Pennsylvania. Presented by Professor Baird.

ATTICORA LEUCOSTERNON Gould. Australia. From Mr. J. Gould's Collection.

PROGNE PURPUREA (Linn.) Pennsylvania. Presented by Professor Baird.

COTYLE RIPARIA (Linn.) France. From M. Des Murs' Collection.
“ “ Pennsylvania. Presented by Wm. Gambel, M. D.
“ SERRIPENNIS (Aud.) Pennsylvania. Presented by Professor Baird.

CHELIDON URBICA (Linn.) France. From M. Des Murs' Collection.

III. Family CORACIDÆ.

CORACIAS GARRULA Linn. Hungary. From M. Des Murs' Collection.

EURYSTOMUS PACIFICUS (Lath.) Australia. From Mr. J. Gould's Collection.

V. Family ALCEDINIDÆ.

DACELO GIGAS (Bodd.) Australia. From Mr. J. Gould's Collection.

ALCEDO ISPIDA Linn. France. From M. Des Murs' Collection.
“ BERYLLINA Vieill. Java. From the same.

CERYLE ALCYON (Linn.) Maryland. Presented by A. L. Heermann, M. D.

CORYTHORNIS CRISTATA (Linn.) Africa. From M. Des Murs' Collection.

ALCYONE PULCHRA Gould. Australia. From Mr. J. Gould's Collection.

HALCYON SANCTA Vig. and Horsf. Australia. From the same.
“ MACLEAYII Jard. and Selby. Australia. From the same.
“ CYANOVENTRIS (Vieill.) Java. From M. Des Murs' Collection.

VI. Family MEROPIDÆ.

MEROPS APIASTER Linn. France. From M. Des Murs' Collection.
“ ORNATUS Lath. Australia. From Mr. J. Gould's Collection.

II. *Tribe* TENUIROSTRES.

I. Family UPUPIDÆ.

Upupa epops Linn. France. From M. Des Murs' Collection.

II. Family PROMEROPIDÆ.

Nectarina famosa (Linn.) Africa. From M. Des Murs' Collection.
" minima (Sykes.) Africa. From the same.

Dicæum hirundinaceum (Lath.) Australia. From Mr. J. Gould's Collection.

Certhiola flaveola (Linn.) Guadeloupe. From M. Des Murs' Collection.

III. Family TROCHILIDÆ.

Phætornis superciliosus (Linn.) Brazil. From M. Des Murs' Collection.

Polytmus jugularis (Linn.) Martinique. Presented by T. B. Wilson, M. D.
" simplex (Less.) Brazil. From M. Des Murs' Collection.
" brevirostris (Less.) Brazil. From the same.
" corallirostris (Bourc. and Muls.) Brazil. From the same.

Topaza pella (Linn.) Brazil. From the same.

Calothorax lucifer (Swains.) Brazil. From the same.

Mellisuga Alexandri (Bourc. and Muls.) California. Presented by A. L. Heermann, M. D.
" minima (Swains.) Jamaica. From M. Des Murs' Collection.
" moschita (Linn.) Guiana. From the same.
" cristata (Linn.) Brazil. From the same.
" Delalandii (Vieill.) Brazil. From the same.
" amethystina (Gmel.) Brazil. From the same.

Hylocharis cœrulea (Vieill.) N. Grenada. From the same.
" sapphirina (Gmel.) Brazil. Presented by T. B. Wilson, M. D.
" cyanogenys (Pr. Max.) Brazil. From the same.
" prasina (Less.) Guiana. From M. Des Murs' Collection.

IV. Family MELIPHAGIDÆ.

Entomophila albigularis Gould. Australia. From Mr. J. Gould's Collection.
" rufigularis Gould. Australia. From the same.

Glyciphila albifrons Gould. Australia. From the same.
" ocularis Gould. Australia. From the same.
" melanops (Lath.) Australia. From the same.

Acanthorynchus tenuirostris (Lath.) Australia. From the same.
" superciliosus Gould. Australia. From the same.

Meliphaga phrygia (Lath.) Australia. From the same.
" ornata Gould. Australia. From the same.
" plumula Gould. Australia. From the same.
" sonora Gould. Australia. From the same.
" flavigula Gould. Australia. From the same.
" Novæ Hollandiæ (Lath.) Australia. From the same.
" Australasiana (Shaw.) Australia. From the same.
" mysticalis Gould. Australia. From the same.
" longirostris Gould. Australia. From the same.

Anthochæra mellivora (Lath.) Australia. From Mr. J. Gould's Collection.
" lunulata Gould. Australia. From the same.
" carunculata (Lath.) Australia. From the same.
" Lewinii Vigs. and Horsf. Australia. From M. Des Murs' Collection.

Phyllornis aurifrons Temm. India. Presented by Mr. E. Wilson.

Tropidorhynchus corniculatus (Lath.) Australia. Presented by T. B. Wilson, M. D.
" cyanotis (Lath.) Australia. From Mr. J. Gould's Collection.

Manorhina garrula (Lath.) Australia. From the same.
" obscura Gould. Australia. From the same.

Melithreptus lunulatus (Shaw.) Australia. From Mons. Des Murs' Collection.
" atricapillus (Lath.) Australia. From the same.
" virescens (Wagler.) Australia. From the same.
" chloropsis Gould. Australia. From the same.

V. Family CERTHIDÆ.

Furnarius rufus (Gmel.) Paraguay. From M. Des Murs' Collection.

Cinclodes nigrofumosus (D'Orb. and Lafr.) Chili. From the same.

Synallaxis humicola Kittl. Chili. From the same.

Annumbius acuticaudatus (Less.) Paraguay. From the same.
" ruber (Vieill.) Paraguay. From the same.

Anabates striatus Spix. Paraguay. From the same.

Picolaptes brunneicapillus (Lafr.) Mexico. Presented by A. L. Heermann, M. D.

Certhia familiaris Linn. France. From M. Des Murs' Collection.
" costa Bailly. Italy. Presented by Mr. E. Wilson.
" Americana Pr. Bonap. Vermont. Presented by T. B. Wilson, M. D.

Tichidroma muraria (Linn.) Switzerland. Presented by A. L. Heermann, M. D.

Climacteris scandens Temm. Australia. From Mr. J. Gould's Collection.
" rufa Gould. Australia. From the same.

Sitta Europæa Linn. France. From M. Des Murs' Collection.
" Syriaca Ehrenb. Dalmatia. From the same.
" Carolinensis Lath. Virginia. From the same.

Troglodytes parvulus Koch. France. From the same.
" " England. Presented by Mr. E. Wilson.
" hyemalis Vieill. Canada. Presented by T. B. Wilson, M. D.
" ædon Vieill. Maryland. Presented by A. L. Heermann, M. D.
" brevirostris Aud. Massachusetts. From Mons. Des Murs' Collection.
" platensis (Lath.) Paraguay. From the same.
" Ludovicianus (Lath.) South Carolina. Presented by T. B. Wilson, M. D.
" arundinaceus Vieill. Pennsylvania. Presented by A. L. Heermann, M. D.
" Bewickii Aud. Maryland. From M. Des Murs' Collection.
" chilensis Less. Brazil. From the same.
" hortensis Less. Chili. From the same.

Sericornis frontalis (Vig. and Horsf.) Australia. From Mr. J. Gould's Collection.
" humilis Gould. Australia. From the same.
" citreogularis Gould. Australia. From the same.
" osculans Gould. Australia. From the same.
" maculatus Gould. Australia. From the same.

Acanthiza pusilla (Lath.) Australia. From the same.
" chrysorrhoa (Quoy and Gaim.) Australia. From the same.
" Diemenensis Gould. Australia. From the same.
" apicalis Gould. Australia. From the same.
" Ewingii Gould. Australia. From the same.
" culicivora (Gould.) Java. From M. Des Murs' Collection.
" fusca (Gould.) Australia. From Mr. J. Gould's Collection.
" brevirostris (Gould.) Australia. From the same.

Parus major Linn. France. From M. Des Murs' Collection.
" cœruleus Linn. France. From the same.
" ater Linn. France. From the same.
" palustris Linn. France. From the same.
" borealis Selys. Longch. Europe. Presented by Mr. E. Wilson.
" caudatus Linn. France. From M. Des Murs' Collection.
" atricapillus Linn. Pennsylvania. From the same.
" carolinensis Aud. Pennsylvania. Presented by A. L. Heermann, M. D.
" atriceps Horsf. Java. From M. Des Murs' Collection.

Lophophanes cristatus (Linn.) France. From the same.
" bicolor (Linn.) Pennsylvania. Presented by A. L. Heermann, M. D.

Psaltria minima (Towns.) California. From the same.

Paroides pendulinus (Linn.) France. From M. Des Murs' Collection.
" biarmicus (Linn.) Germany. From the same.

Conirostrum ornatum. California. Presented by A. L. Heermann, M. D.

Sphenostoma leucopsis (Gould.) Australia. From Mr. J. Gould's Collection.

Mniotilta varia (Lath.) N. York. Presented by T. B. Wilson, M. D.

Sylvicola æstiva (Gmel.) Pennsylv. Presented by A. L. Heermann, M. D.
" discolor (Vieill.) N. Jersey. From M. Des Murs' Collection.
" striata (Gmel.) Bay of Fundy. Presented by T. B. Wilson, M.D.
" Blackburniæ (Gmel.) Massachusetts. From the same.
" americana (Linn.) Massachusetts. From the same.
" chrysoptera (Linn.) Virginia. From the same.
" Pennsylvanica (Linn.) Vermont. From the same.
" virens (Gmel.) Massachusetts. From M. Des Murs' Collection.

Helenaia rubricapilla (Gmel.) Nova Scotia. Presented by T. B. Wilson, M. D.
" Swainsonii (Aud.) S. Carolina. From the same.

Trichas marilandicus (Briss.) Penn. Presented by A. L. Heermann, M. D.

Zosterops lateralis (Lath.) Van Diemen's Land. From Mons. Des Murs' Collection.
" albogularis Gould. Australia. From Mr. J. Gould's Collection.
" chloronotus Vieill. Australia. From the same.

Motacilla alba Linn. France. From M. Des Murs' Collection.
" lugubris Temm. France. From the same.
" boarula Penn. France. From the same.
" citreola Pall. France. From the same.

Ædon galactodes (Temm.) Greece. From the same.

Sylvia melanocephala (Gmel.) France. From the same.
" conspicillata Marm. Sardinia. From the same.
" subalpina Bonn. Dalmatia. From the same.
" undata (Bodd.) Europe. Presented by T. B. Wilson, M. D.
" Ruppellii Temm. Algiers. From M. Des Murs' Collection.
" curruca Lath. France. From the same.
" atricapilla (Briss.) France. From the same.
" cinerea (Briss.) France. From the same.
" hortensis (Penn.) France. From the same.
" orphea Temm. France. From the same.
" " Algiers. From the same.
" nisoria Bechst. France. From the same.
" hippolais (Linn.) France. From the same.
" " Tangier. From the same.
" trochilus (Linn.) France. From the same.
" sibilatrix (Bechst.) France. From the same.
" rufa (Lath.) France. From the same.
" Bonellii (Vieill.) France. From the same.

Regulus cristatus Ray. France. From the same.
" ignicapillus Brehm. France. From the same.

Culicivora cœrulea (Gmel.) Pennsylv. Presented by A. L. Heermann, M

Saxicola œnanthe (Linn.) France. From M. Des Murs' Collection.
" stapazina (Linn.) France. From the same.
" aurita Temm. France. From the same.
" leucomela (Pall.) Dalmatia. From the same.
" leucura (Gmel.) France. From the same.
" pileata (Gmel.) Africa. From the same.
" caprata (Linn.) Africa. From the same.
" explorator (Vieill.) Africa. From the same.

Pratincola rubetra (Linn.) France. From the same.
" rubicola (Linn.) France. From the same.
" " Africa. From the same.

Ruticilla phœnicurus (Linn.) France. From the same.
" tithys (Scop.) France. From the same.

Erythacus rubecula (Linn.) France. From the same.
" " deformed egg. France. From the same.
" " Africa. From the same.

Cyanecula suecica (Linn.) Germany. From the same.

Petroica fusca Gould. Australia. From the same.
" multicolor (Gmel.) Australia. From the same.
" cucullata (Lath.) Australia. From Mr. J. Gould's Collection.
" Goodenovii (Vig. and Horsf.) Australia. From the same.
" phœnicea Gould. Australia. From the same.
" rhodinogastra (Drapiez.) Australia. From Mons. Des Murs' Collection.

Sialia Wilsonii Swains. Pennsylvania. Presented by Wm. Gambel, M. D.
" arctica Swains. N. W. Coast. Presented by T. B. Wilson, M. D.

Accentor alpinus (Gmel.) Switzerland. From M. Des Murs' Collection.
" modularis (Linn.) France. From the same.

Enicocichla aurocapillus (Wils.) N. Jersey. Presented by A. L. Heermann, M. D.
" novæboracensis (Gmel.) Massachusetts. Presented by T. B. Wilson, M. D.

Mimus polyglottus (Linn.) Maryland. From M. Des Murs' Collection.
" carolinensis (Linn.) Pennsylvania. From the same.
" thenca (Mol.) Buenos Ayres. From the same.
" calandria (D'Orb. and Lafr.) New Grenada. From the same.
" " Paraguay. From the same.
" dorsalis (D'Orb. and Lafr.) Chili. From the same.

Toxostomus rufus (Linn.) Pennsylvania. From the same.

Cinclosoma punctatum (Lath.) Australia. From Mr. J. Gould's Collection.
" castanotum Gould. Australia. From the same.

Timalia pileata Horsf. Java. From M. Des Murs' Collection.

Pomatorhinus superciliaris (Bl.) Australia. From Mr. J. Gould's Collection.
" temporalis Vig. and Horsf. Australia. From the same.

Icteria viridis (Gmel.) Pennsylvania. Presented by S. W. Woodhouse, M.D.

Oriolus galbulus Linn. France. From M. Des Murs' Collection.
" chinensis Linn. Java. From the same.

Andropadus importunus (Vieill.) Africa. From the same.

Pycnonotus aurigaster (Vieill.) Africa. From the same.
" capensis (Gmel.) Africa. From the same.
" crocorrhous Strickl. Java. From the same.
" goiavier (Scop.) Java. From the same.
" jocosus (Linn.) India. Presented by Mr. E. Wilson.
" leucogenys (Gray.) India. From the same.

III. Family MUSCICAPIDÆ.

Lipaugus plumbeus (Licht.) Rio Janeiro. From M. Des Murs' Collection.

Tænioptera nengeta (Linn.) Buenos Ayres. From the same.
" variegata (D'Orb. and Lafr.) Buenos Ayres. From the same.

Fluvicola climazura (Vieill.) Brazil. From the same.
" pica (Bodd.) Paraguay. From the same.
" nigerrima D'Orb. and Lafr. Rio Janeiro. From the same.

Lichenops perspicillata (Gmel.) Buenos Ayres. From the same.

Copurus filicauda (Spix.) Rio Janeiro. From the same.

Machetornis rixosa (Vieill.) Paraguay. From the same.

Scaphorhynchus pitangua (Linn.) Brazil. From the same.

Saurophagus sulphuratus (Linn.) Brazil. From the same.

Tyrannus intrepidus Vieill. Pennsylvania. From the same.
" " Brazil. From the same.
" verticalis (Say.) California. Presented by A. L. Heermann, M. D.
" magnirostris D'Orb. Cuba. From M. La Sagra's Collection.
" melancholicus Vieill. Buenos Ayres. From M. Des Murs' Collection.
" rusticus (Licht.) Paraguay. From the same.

Milvulus tyrannus (Linn.) Buenos Ayres. From the same.

Tyrannula crinita (Linn.) Pennsylvania. From the same.
" " New Jersey. Presented by Wm. Gambel, M. D.
" audax (Gmel.) Buenos Ayres. From M. Des Murs' Collection.
" ferox (Gmel.) Brazil. From the same.
" Cooperii (Nutt.) Vermont. Presented by T. B. Wilson, M. D.

II. Family HIRUNDINIDÆ.

Hirundo rustica Linn. France. From M. Des Murs' Collection.
“ rufa Vieill. Pennsylvania. From the same.
“ frontalis Quoy and Gaim. Australia. From Mr. J. Gould's Collection.
“ nigricans Vieill. Australia. From the same.
“ ariel (Gould.) Australia. From the same.
“ lunifrons Say. Rocky Mountains. Presented by A. L. Heermann, M. D.
“ bicolor Vieill. Maryland. From the same.
“ albiventer Bodd. Paraguay. From M. Des Murs' Collection.
“ cyanoleuca Vieill. Chili. From the same.

Cypselus melba (Linn.) France. From the same.
“ apus (Linn.) France. From the same.
“ Cayennensis (Gmel.) Paraguay. From the same.

Macropteryx Klecho (Raffl.) Java. From the same.

Collocalia nidifica (Lath.) Java. From the same.
“ fuciphaga (Thunb.) Java. From the same.

Acanthylis pelasgia (Linn.) Pennsylvania. Presented by Professor Baird.

Atticora leucosternon Gould. Australia. From Mr. J. Gould's Collection.

Progne purpurea (Linn.) Pennsylvania. Presented by Professor Baird.

Cotyle riparia (Linn.) France. From M. Des Murs' Collection.
“ “ Pennsylvania. Presented by Wm. Gambel, M. D.
“ serripennis (Aud.) Pennsylvania. Presented by Professor Baird.

Chelidon urbica (Linn.) France. From M. Des Murs' Collection.

III. Family CORACIDÆ.

Coracias garrula Linn. Hungary. From M. Des Murs' Collection.

Eurystomus pacificus (Lath.) Australia. From Mr. J. Gould's Collection.

V. Family ALCEDINIDÆ.

Dacelo gigas (Bodd.) Australia. From Mr. J. Gould's Collection.

Alcedo ispida Linn. France. From M. Des Murs' Collection.
“ beryllina Vieill. Java. From the same.

Ceryle alcyon (Linn.) Maryland. Presented by A. L. Heermann, M. D.

Corythornis cristata (Linn.) Africa. From M. Des Murs' Collection.

Alcyone pulchra Gould. Australia. From Mr. J. Gould's Collection.

Halcyon sancta Vig. and Horsf. Australia. From the same.
“ Macleayii Jard. and Selby. Australia. From the same.
“ cyanoventris (Vieill.) Java. From M. Des Murs' Collection.

VI. Family MEROPIDÆ.

Merops apiaster Linn. France. From M. Des Murs' Collection.
“ ornatus Lath. Australia. From Mr. J. Gould's Collection.

II. *Tribe TENUIROSTRES.*

I. Family UPUPIDÆ.

Upupa epops Linn. France. From M. Des Murs' Collection.

II. Family PROMEROPIDÆ.

Nectarinia famosa (Linn.) Africa. From M. Des Murs' Collection.
" minima (Sykes.) Africa. From the same.

Dicæum hirundinaceum (Lath.) Australia. From Mr. J. Gould's Collection.

Certhiola flaveola (Linn.) Guadeloupe. From M. Des Murs' Collection.

III. Family TROCHILIDÆ.

Phætornis superciliosus (Linn.) Brazil. From M. Des Murs' Collection.

Polytmus jugularis (Linn.) Martinique. Presented by T. B. Wilson, M. D.
" simplex (Less.) Brazil. From M. Des Murs' Collection.
" brevirostris (Less.) Brazil. From the same.
" corallirostris (Bourc. and Muls.) Brazil. From the same.

Topaza pella (Linn.) Brazil. From the same.

Calothorax lucifer (Swains.) Brazil. From the same.

Mellisuga Alexandri (Bourc. and Muls.) California. Presented by A. L. Heermann, M. D.
" minima (Swains.) Jamaica. From M. Des Murs' Collection.
" moschita (Linn.) Guiana. From the same.
" cristata (Linn.) Brazil. From the same.
" Delalandii (Vieill.) Brazil. From the same.
" amethystina (Gmel.) Brazil. From the same.

Hylocharis cærulea (Vieill.) N. Grenada. From the same.
" sapphirina (Gmel.) Brazil. Presented by T. B. Wilson, M. D.
" cyanogenys (Pr. Max.) Brazil. From the same.
" prasina (Less.) Guiana. From M. Des Murs' Collection.

IV. Family MELIPHAGIDÆ.

Entomophila albigularis Gould. Australia. From Mr. J. Gould's Collection.
" rufigularis Gould. Australia. From the same.

Glyciphila albifrons Gould. Australia. From the same.
" ocularis Gould. Australia. From the same.
" melanops (Lath.) Australia. From the same.

Acanthorhynchus tenuirostris (Lath.) Australia. From the same.
" superciliosus Gould. Australia. From the same.

Meliphaga phrygia (Lath.) Australia. From the same.
" ornata Gould. Australia. From the same.
" plumula Gould. Australia. From the same.
" sonora Gould. Australia. From the same.
" flavigula Gould. Australia. From the same.
" Novæ Hollandiæ (Lath.) Australia. From the same.
" Australasiana (Shaw.) Australia. From the same.
" mysticalis Gould. Australia. From the same.
" longirostris Gould. Australia. From the same.

Tyrannula nunciola (Wils.) Penn. Presented by S. W. Woodhouse, M. D.
“ phœbe (Lath.) N. Hampshire. Presented by T. B. Wilson, M. D.
“ acadica (Gmel.) Pennsylvania. From M. Des Murs' Collection.
“ Traillii (Aud.) Vermont. Presented by T. B. Wilson, M. D.
“ virens (Linn.) Pennsylvania. Presented by Professor Baird.
“ “ Cuba. From M. La Sagra's Collection.
“ flaviventris Baird. Vermont. Presented by T. B. Wilson, M. D.
“ nigricans Swains. California. Presented by A. L. Heermann, M.D.
“ cayennensis (Linn.) Brazil. From M. Des Murs' Collection.
“ albicollis (Vieill.) Brazil. From the same.

Elania pagana (Licht.) Brazil. From the same.
“ icterophrys (Vieill.) Paraguay. From the same.

Euscarthmus parulus (Kittl.) Chili. From the same.

Tityra Cuvieri (Swains.) Rio Janeiro. From the same.

Muscivora rupestris (Pr. Max.) Rio Janeiro. From the same.

Rhipidura albiscapa Gould. Australia. From Mr. J. Gould's Collection.
“ motacilloides Vig. and Horsf. Australia. From the same.

Tchitrea torquata (Gmel.) Africa. From M. Des Murs' Collection.

Monarcha nigra (Sparr.) Brazil. From the same.

Seisura inquieta (Lath.) Australia. From Mr. J. Gould's Collection.
“ nitida (Gould.) Australia. From the same.

Hemichelidon latirostris (Raffl.) Java. From the same.

Muscicapa grisola Linn. England. Presented by Mr. E. Wilson.
“ albicollis Temm. Germany. From M. Des Murs' Collection.
“ atricapilla Linn. France. From the same.
“ parva Bechst. Saxony. From the same.

Setophaga mitrata (Lath.) Missouri. From the same.
“ ruticilla (Gmel.) Pennsylvania. Presented by Mr. S. Ashmead.

Vireo noveboracensis (Gmel.) Massachusetts. Presented by T. B. Wilson, M. D.
“ solitarius (Wils.) N. York. From the same.
“ flavifrons (Gmel.) Massachusetts. From M. Des Murs' Collection.
“ olivaceus (Linn.) N. Jersey. Presented by Mr. S. Ashmead.
“ gilvus (Vieill.) Pennsylvania. Presented by Professor Baird.

IV. Family AMPELIDÆ.

Pardalotus punctatus (Lath.) Van Diemen's Land. From Mr. J. Gould's Collection.
“ striatus (Lath.) Van Diemen's Land. From the same.
“ quadragintus Gould. Van Diemen's Land. From the same.
“ brevirostris (Gould.) Australia. From the same.

Pachycephala gutturalis (Lath.) Australia. From the same.
“ rufiventris (Lath.) Australia. From the same.
“ inornata Gould. Australia. From the same.

Eopsaltria australis (Lath.) Australia. From the same.
“ griseogularis Gould. Australia. From the same.

Pipra caudata Shaw. Bahia. From M. Des Murs' Collection.
“ militaris Shaw. Bahia. From the same.
“ rubrocapilla Briss. Bahia. From the same.
“ leucocilla Linn. Bahia. From the same.

Rupicola peruviana (Lath.) New Grenada. From the same.

Ampelis cedrorum (Vieill.) Pennsylvania. From the same.

Procnias variegata (Linn.) Brazil. From the same.

Campephaga Macei (Less.) India. Presented by T. B. Wilson, M. D.
" melanops (Lath.) Australia. From Mr. J. Gould's Collection.
" parvirostris Gould. Australia. From the same.
" mentalis (Vig. and Horsf.) Australia. From the same.
" humeralis (Gould.) Australia. From the same.

Artamus cinereus Vieill. Australia. From the same.
" sordidus (Lath.) Australia. From the same.
" leucopygialis Gould. Australia. From the same.
" personatus Gould. Australia. From the same.
" superciliosus Gould. Australia. From the same.

Dicrurus balicassius (Linn.) Java. From M. Des Murs' Collection.
" macrocercus Vieill. Java. From the same.

V. Family LANIIDÆ.

Lanius excubitor Linn. France. From M. Des Murs' Collection.
" meridionalis Temm. France. From the same.
" ludovicianus Linn. S. Carolina. Presented by T. B. Wilson, M. D.
" minor Gmel. France. From M. Des Murs' Collection.
" collaris Linn. Africa. From the same.
" borealis Vieill. Labrador. Presented by Mr. E. Wilson.

Enneoctonus collurio (Linn.) France. From M. Des Murs' Collection.
" rufus (Briss.) France. From the same.

Telophorus zeylonus (Linn.) Africa. From the same.

Oreoica cristata (Lewin.) Australia. From Mr. J. Gould's Collection.

Colluricincla harmonica (Lath.) Australia. From the same.
" brunnea Gould. Australia. From the same.
" rufiventris Gould. Australia. From the same.
" parvula Gould. Australia. From the same.
" Selbyi Gould. Australia. From M. Des Murs' Collection.

Laniarius boulboul (Lath.) Africa. From the same.

Cracticus cinereus (Gould.) Australia. From the same.
" torquatus (Lath.) Australia. From Mr. J. Gould's Collection.
" nigrogularis (Gould.) Australia. From the same.
" leucopterus Gould. Australia. From the same.

IV. *Tribe CONIROSTRES.*

I. Family CORVIDÆ.

Gymnorhina tibicen (Lath.) Australia. From Mr. J. Gould's Collection.
" organicum Gould. Australia. From the same.
" anaphonensis (Temm.) Australia. From the same.

Strepera graculina (Shaw.) Australia. From M. Des Murs' Collection.
" arguta Gould. Australia. From Mr. J. Gould's Collection.

Garrulus glandarius (Linn.) France. From M. Des Murs' Collection.
" atricapillus Geoffr. Spain. From the same.

Cyanocorax cristatus (Linn.) Virginia. From the same.
" Stelleri (Gmel.) California. Presented by T. B. Wilson, M. D.

Cyanocorax cyanoleucus (Pr. Max.) Paraguay. From M. Des Murs' Collection.
“ azureus (Temm.) Paraguay. From the same.
“ Californicus (Vig.) California. Presented by A. L. Heermann, M. D.

Struthidea cinerea Gould. Australia. From Mr. J. Gould's Collection.

Nucifraga caryocatactes (Linn.) Germany. From M. Des Murs' Collection.

Pica caudata Ray. France. From the same.
“ “ England. From the same.

Corvus corax Linn. France. From the same.
“ “ England. From the same.
“ “ Africa. From the same.
“ “ Greenland From the same.
“ leucophæus Vieill. Greece. From the same.
“ corone Linn. France. From the same.
“ “ Great Britain. From the same.
“ americanus Aud. Pennsylvania. Presented by Wm. Gambel, M. D.
“ “ Delaware. Presented by T. B. Wilson, M. D.
“ coroneoides Vig. and Horsf. Australia. From Mr. J. Gould's Collection.
“ ossifragus Wils. N. Jersey. Presented by Mr. S. Ashmead.
“ frugeligus Linn. France. From M. Des Murs' Collection.
“ “ Egypt. From the same.
“ “ Syria in Asia. From the same.
“ capensis Licht. Africa. From the same.
“ monedula Linn. France. From the same.
“ cornix Linn. France. From the same.
“ scapulatus Daud. Africa. From the same.
“ jamaicensis Gmel. Cuba. From M. La Sagra's Collection.
“ splendens Vieill. India. Presented by Mr. E. Wilson.
“ macrorhynchus Temm. India. From the same.

Pyrrhocorax melanorhynchus (Vieill.) Australia. From Mr. J. Gould's Collection.

Corcorax alpinus Vieill. Switzerland. Presented by Mr. E. Wilson.

Coracia gracula (Linn.) Italy. From M. Des Murs' Collection.

III. Family STURNIDÆ.

Astrapia carunculata (Less.) Africa. From M. Des Murs' Collection.

Juida nabouroup (Daud.) Africa. From the same.

Gracula religiosa Linn. Sumatra. From the same.
“ “ India. Presented by Mr. E. Wilson.

Acridotheres tristis (Linn.) Africa. From M. Des Murs' Collection.

Hetærornis cristatella (Linn.) Java. From the same.

Sturnopastor jalla Horsf. Java. From the same.

Sturnus vulgaris Linn. France. From the same.
“ unicolor Marm. Italy. From the same.
“ “ Africa. From the same.

Sturnella Ludovicianus (Linn.) N. York. From the same.
“ “ Penna. Presented by Wm. Gambel, M. D.
“ neglecta Aud. California. Presented by A. L. Heermann, M. D.
“ hippocrepis Wagler. Cuba. From M. La Sagra's Collection.
“ militaris (Linn.) Chili. From M. Des Murs' Collection.

Scolecophagus ferrugineus (Wils.) Nova Scotia. Presented by T. B. Wilson, M. D.

Quiscalus purpureus (Licht.) Maryland. Presented by A. L. Heermann, M. D.
" major Vieill. S. Carolina. From M. Des Murs' Collection.
" purpuratus Swains. Mexico. From the same.
" barita Gmel. Brazil. From the same.
" " Cuba. From M. La Sagra's Collection.

Scaphidurus atroviolaceus D'Orb. Cuba. From the same.

Cacicus persicus (Linn.) Para. Presented by Mr. W. H. Edwards.
" hæmorrhous (Linn.) Para. From the same.
" solitarius (Vieill.) Paraguay. From M. Des Murs' Collection.

Icterus vulgaris Daud. Paraguay. From the same.
" " Buenos Ayres. From the same.
" jamaicaii (Gmel.) Rio Janeiro. From the same.

Xanthornus varius (Gmel.) Pennsylvania. From the same.
" dominicensis (Linn.) Cuba. From M. La Sagra's Collection.
" aurantius (Valenc.) Paraguay. From M. Des Murs' Collection.
" flavus Daud. Buenos Ayres. From the same.
" viridis (Gmel.) Buenos Ayres. From the same.

Yphantes Baltimore (Linn.) Pennsylvania. Presented by Mr. S. Ashmead.
" Bullockii Swains. California. Presented by A. L. Heermann, M.D.

Molothrus pecoris (Gmel.) Pennsylvania. Presented by Wm. Gambel, M.D.
" Bonariensis (Gmel.) Chili. From M. Des Murs' Collection.

Agelaius phœniceus (Linn.) N. Jersey. From the same.
" tricolor Aud. California. Presented by A. L. Heermann, M. D.
" gubernator (Wagl.) California. From the same.
" xanthocephalus (Pr. Bonap.) California. From the same.
" cruræus (Mol.) Chili. From M. Des Murs' Collection.
" pyrrhopterus (Vieill.) Brazil. From the same.
" aterrimus (Kittl.) Chili. From the same.
" brevirostris (D'Orb. and Lafr.) Paraguay. From the same.
" thilius (Mol.) Chili. From the same.

Chrysomus frontalis (Vieill.) Buenos Ayres. From the same.

Dolichonyx oryzivorus (Linn.) Massachusetts. From the same.

IV. Family FRINGILLIDÆ.

Hyphantornis capensis (A. Smith.) Africa. From M. Des Murs' Collection.
" aurantia (Vieill.) Africa. From the same.

Ploceus manyar (Horsf.) India. Presented by Mr. E. Wilson.
" nelicourvi (Scop.) Bengal. From M. Des Murs' Collection.
" aureus (Gmel.) Africa. From the same.
" oryx (Linn.) Africa. From the same.
" madagascariensis (Linn.) Island of Bourbon. From the same.
" jonquillaceus Vieill. Java. From the same.

Guiraca cœrulea (Linn.) Pennsylvania. Presented by T. B. Wilson, M.
" Ludoviciana (Linn.) Vermont. From the same.

Calamospiza bicolor (Towns.) Missouri. Presented by A. L. Heermann, M. D.

Cardinalis virginianus Pr. Bonap. Maryland. From the same.
" Carlsonii (Daud.) Brazil. From M. Des Murs' Collection.
" " Laid at Paris. From the same.

Coccothraustes vulgaris Briss. France. From the same.

Pipilo erythropthalma (Linn.) N. Jersey. From the same.
“ arctica Swains. California. Presented by A. L. Heermann, M. D.
“ fusca Swains. California. From the same.

Pitylus melanocephalus (Swains.) California. From the same.

Saltator cœrulescens Vieill. Buenos Ayres. From M. Des Murs' Collectio[illegible].
“ aurantiarostris Vieill. Buenos Ayres. From the same.

Rhamphopis brasilia (Linn.) Para. Presented by T. B. Wilson, M. D.
“ jacapa (Linn.) Bahia. From M. Des Murs' Collection.

Pyranga rubra (Linn.) Pennsylvania. Presented by Mr. S. Ashmead.
“ æstiva (Gmel.) Brazil. From M. Des Murs' Collection.

Tanagra episcopus Linn. Bahia. From the same.
“ ornata Sparr. Paraguay. From the same.
“ zena (Linn.) Brazil. From the same.
“ olivascens Licht. Rio Janeiro. From the same.

Tachyphonus leucopterus (Gmel.) Paraguay. From the same.
“ cristatus (Linn.) Brazil. From the same.

Calliste festiva (Shaw.) Brazil. From the same.
“ thoracica (Temm.) Rio Janeiro. From the same.
“ braziliensis (Linn.) Bahia. From the same.
“ cayanna (Linn.) Brazil. From the same.

Euphonia violacea (Linn.) Bahia. From the same.

Euplectes capensis (Linn.) Africa. From the same.

Munia oryzivora (Linn.) Java. From the same.
“ punctularia (Linn.) Java. From the same.
“ maja (Linn.) Java. From the same.
“ striata (Linn.) Java. From the same.
“ cantans (Gmel.) Africa. From the same.
“ malacca Linn. Africa. From the same.

Amadina fasciata (Gmel.) Africa. From the same.

Peophila cincta (Gould.) Australia. From Mr. J. Gould's Collection.

Sporothlastes castanotis (Gould.) Australia. From the same.
“ temporalis (Lath.) Australia. From the same.
“ nitida (Lath.) Australia. From the same.
“ guttata (Shaw.) Australia. From the same.

Steganopleura modesta (Gould.) Australia. From the same.
“ ruficauda (Gould.) Australia. From the same.
“ Bichenovii (Vigors.) Australia. From the same.

Estrelda amandava (Linn.) Africa. From M. Des Murs' Collection.
“ astrild (Linn.) Africa. From the same.

Plectrophanes nivalis (Linn.) Iceland. From the same.
“ lapponica (Linn.) Greenland. From the same.
“ ornatus (Towns.) Rocky Mts. Presented by A. L. Heermann, M. D.

Cynchramus miliaria (Linn.) France. From M. Des Murs' Collection.

Schænicola schæniculus (Linn.) France. From the same.

Emberiza citrinella Linn. France. From the same.
“ “ Africa. From the same.
“ hortulana Linn. France. From the same.
“ cirla Linn. France. From the same.

Emberiza cia Linn. France. From M. Des Murs' Collection.
" diuca (Molina.) Chili. From the same.

Fringillaria flaviventris (Vieill.) Africa. From the same.

Euspiza melanocephala (Scop.) Greece. From the same.
" americana (Gmel.) Pennsylva. Presented by T. B. Wilson, M. D.

Gubernatrix cristatella (Vieill.) Buenos Ayres. From M. Des Murs' Collection.

Paroaria cucullata (Lath.) S. America. From the same.

Volatinia splendens (Vieill.) S. America. From the same.
" jacarina (Linn.) S. America. From the same.

Spiza ciris (Linn.) S. Carolina. From the same.
" cyanea (Linn.) Pennsylvania. Presented by Professor Baird.
" amœna (Say.) California. Presented by A. L. Heermann, M. D.

Struthus hyemalis (Linn.) Alleghany Mts. Presented by Mr. S. Ashmead.

Phrygilus alaudina (Kittl.) Brazil. From M. Des Murs' Collection.

Zonotrichia albicollis (Gmel.) Halifax. Presented by T. B. Wilson, M. D.
" melodia (Wils.) Pennsylvania. From M. Des Murs' Collection.
" graminea (Gmel.) Pennsylvania. From the same.
" atricapilla (Aud.) California. Presented by A. L. Heermann, M. D.
" matutina (Licht.) Rio Janeiro. From M. Des Murs' Collection.

Chondestes grammaca (Say.) Missouri. Presented by T. B. Wilson, M. D.

Spizella shattuckii (Aud.) Missouri. From the same.
" canadensis (Lath.) Nova Scotia. From the same.
" socialis (Wils.) Pennsylvania. Presented by Wm. Gambel, M. D.
" pusilla (Wils.) Pennsylvania. From M. Des Murs' Collection.

Passerculus palustris (Wils.) Vermont. Presented by T. B. Wilson, M. D.

Peucæa Bachmanii (Aud.) S. Carolina. Presented by T. B. Wilson, M. D.

Coturniculus Henslowii (Aud.) N. Jersey. From the same.
" passerina (Wils.) Penna. From M. Des Murs' Collection.
" manimbe (Licht.) Brazil. From the same.

Ammodramus maritimus (Wils.) N. Jersey. Presented by A. L. Heermann, M. D.
" caudacutus (Gmel.) N. Jersey. From M. Des Murs' Collection.

Phonipara lepidus (Linn.) Cuba. From M. La Sagra's Collection.

Spermophila mysia (Vieill.) Bahia. From M. Des Murs' Collection.

Fringilla cœlebs Linn. France. From the same.

Passer montana (Linn.) France. From the same.
" domestica (Linn.) France. From the same.
" " Africa. From the same.
" Italiæ (Vieill.) Greece. From the same.
" salicicola (Vieill.) Spain. From the same.
" arcuata (Gmel.) Africa. From the same.

Petronia stulta (Gmel.) France. From the same.

Chlorospiza chloris (Linn.) France. From the same.

Chrysomitris tristis (Linn.) Pennsylvania. Presented by Professor Baird.
" Lawrencii (Cassin.) California. Presented by A. L. Heermann, M. D.

Chrysomitris pinus (Wils.) Labrador. Presented by T. B. Wilson, M. D.

Carduelis elegans Steph. France. From M. Des Murs' Collection.

Alario aurantia (Gmel.) Africa. From the same.

Citrinella nigriceps (Rupp.) Africa. From the same.

Crithagra brasiliensis (Gmel.) Brazil. From the same.
" luteocephala (D'Orb.) Bahia. From the same.
" flaveola (Linn.) Paraguay. From the same.

Buserinus sulphuratus (Linn.) Africa. From the same.

Serinus butyraceus (Linn.) Africa. From the same.
" canaria (Linn.) Canary Islands. From the same.
" meridionalis Bonap. France. From the same.

Pyrrhula coccinea (Sandb.) Europe. Presented by Mr. E. Wilson.
" rubicilla Pall. France. From M. Des Murs' Collection.

Loxia pityopsittacus Bechst. Germany. From the same.
" curvirostra Linn. Germany. From the same.
" americana Wils. Vermont. Presented by T. B. Wilson, M. D.

Carpodacus familiaris M'Call. California. Presented by A. L. Heermann, M. D.
" purpureus (Gmel.) Mass. From M. Des Murs' Collection.
" frontalis (Say.) California. Presented by Col. M'Call.

Montifringilla nivalis (Linn.) Switzerland. From M. Des Murs' Collection.

Linota cannabina (Linn.) France. From the same.
" montium (Gmel.) France. From the same.
" " Europe. Presented by T. B. Wilson, M. D.

Acanthis linaria (Linn.) Scotland. From the same.
" " Labrador. From M. Des Murs' Collection.
" borealis (Temm.) Greenland. From the same.

Alauda arvensis Linn. France. From the same.
" brachydactyla Temm. France. From the same.
" cristata Linn. France. From the same.
" arborea Linn. France. From the same.
" crassirostris (Vieill.) Africa. From the same.
" ruficeps Rupp. Africa. From the same.

Melanocorypha calandra (Linn.) France. From the same.

Otocoris alpestris (Linn.) Labrador. From the same.
" rufa (Aud.) California. Presented by Wm. Gambel, M. D.

Megalophonus rufipileus (Vieill.) Africa. From M. Des Murs' Collection.

Phytotoma rara Moll. Chili. From the same.

V. Family COLIDÆ.

Colius striatus Gmel. Africa. From M. Des Murs' Collection.

VI. Family MUSOPHAGIDÆ.

Turacus erythrolophus (Vieill.) Africa. From M. Des Murs' Collection.

Opisthocomus cristatus (Lath.) Paraguay. From the same.

3d Order SCANSORES.

II. Family PSITTACIDÆ.

Nymphicus Novæ Hollandiæ (Gmel.) Australia. From Mr. J. Gould's Collection.

Platycercus Brownii (Kuhl.) Australia. From the same.
" semitorquatus Quoy and Gaim. Australia. From the same.
" icterotis (Temm.) Australia. From the same.
" pileatus Vig. Australia. From the same.
" eximius (Shaw.) Australia. From the same.
" Barnardii (Lath.) Australia. From the same.
" zonarius (Shaw.) Australia. From the same.

Psephotus hæmatonotus Gould. Australia. From Mr. J. Gould's Collection.

Aprosmictus scapulatus (Bechst.) Australia. From the same.

Polytelis melanura (Vig.) Australia. From the same.

Palæornis rufirostris (Linn.) Africa. From M. Des Murs' Collection.
" Alexandri (Linn.) Asia. From the same.
" cubicularius (Linn.) Asia. From the same.
" Bengalensis Briss. India. Presented by Mr. E. Wilson.

Melopsittacus undulatus Shaw. Australia. From Mr. J. Gould's Collection.

Lathamus Novæ Zealandiæ (Sparr.) New Zealand. Presented by T. B. Wilson, M. D.

Euphema elegans Gould. Australia. From Mr. J. Gould's Collection.
" aurantia Gould. Australia. From the same.
" chrysostoma (Kuhl.) Australia. From the same.
" pulchella (Shaw.) Australia. From the same.

Trichoglossus porphyrocephalus Diet. Australia. From the same.
" pusillus (Shaw.) Australia. From the same.
" concinnus (Shaw.) Australia. From the same.

Ara ararauna (Linn.) Brazil. From M. Des Murs' Collection.

Conurus jendaya (Gmel.) From the same.
" monachus (Bodd.) From the same.

Eos rubra (Gmel.) Molucca. From the same.

Eclectus Ceylonensis (Bodd.) E. Indies. From the same.

Psittacus erythacus Linn. Senegal. From the same.

Chrysotis æstivus (Linn.) Brazil. From the same.
" festivus (Linn.) Brazil. From the same.
" ochrocephalus (Gmel.) Brazil. From the same.
" amazonicus (Briss.) Brazil. From the same.

Pullaria guineensis (Briss.) Africa. From the same.

Cacatua sulphurea (Gmel.) N. S. Wales. From Mr. J. Gould's Collection.
" moluccensis (Gmel.) Molucca Isl. From M. Des Murs' Collection.
" cristata (Linn.) Molucca Isl. From the same.

Licmetis pastinator Gould. Australia. From Mr. J. Gould's Collection.
" tenuirostris (Kuhl.) Australia. From the same.

Calyptorhynchus naso Gould. Australia. From the same.
" Baudinii Lear. Australia. From the same.

III. Family PICIDÆ.

Laimodon nigrothorax (Cuv.) Africa. From M. Des Murs' Collection.
" leucomelas (Bodd.) Africa. From the same.

Picus major Linn. France. From the same.
" medius Linn. France. From the same.
" minor Linn. France. From the same.
" leuconotus Bechst. Germany. From the same.
" pubescens Linn. Maryland. Presented by A. L. Heermann, M. D.
" martinæ Aud. Vermont. Presented by T. B. Wilson, M. D.
" analis Temm. Java. From M. Des Murs' Collection.

Drycopus martius (Linn.) Europe. Presented by Mr. E. Wilson.

Dendrobates percussus (Temm.) Cuba. From M. La Sagra's Collection.

Gecinus viridis (Linn.) France. From M. Des Murs' Collection.
" canus (Gmel.) Germany. From the same.

Melanerpes erythrocephalus (Linn.) Pennsylvania. Presented by Wm. Gambel, M. D.

Colaptes auratus (Linn.) Pennsylvania. From the same.
" superciliosus Vig. Cuba. From M. La Sagra's Collection.

Yunx torquilla Linn. France. From M. Des Murs' Collection.

IV. Family CUCULIDÆ.

Saurothera Merlini D'Orb. Cuba. From M. La Sagra's Collection.

Centropus affinis Horsf. Java. From M. Des Murs' Collection.
" phasianus (Lath.) Australia. From Mr. J. Gould's Collection.

Diplopterus guira (Gmel.) Buenos Ayres. From M. Des Murs' Collection.
" chochi (Vieill.) Paraguay. From the same.

Piaya cayana (Linn.) Brazil. From the same.

Coccyzus americanus (Linn.) Pennsylvania. Presented by Professor Baird.
" erythropthalmus (Wils.) Maryland. Presented by A. L. Heermann, M. D.

Crotophaga ani Linn. Paraguay. From M. Des Murs' Collection.
" " Cuba. From M. La Sagra's Collection.
" major Linn. Brazil. From M. Des Murs' Collection.
" " Para. Presented by Mr. Wm. H. Edwards.
" sulcirostra Swains. Peru. From M. Des Murs' Collection.

Scythrops Novæ Hollandiæ Lath. Australia. From Mr. J. Gould's Collection.

Cuculus canorus Linn. France. From M. Des Murs' Collection.
" inornatus Vigs. and Horsf. Australia. From Mr. J. Gould's Collection.
" cinerascens Vig. and Horsf. Australia. From the same.

Chalcites lucidus (Gmel.) Australia. From the same.
" osculus Gould. Australia. From the same.

4th Order COLUMBÆ.

I. Family COLUMBIDÆ.

Ptilonopus pulcherrimus (Scop.) Java. From M. Des Murs' Collection.

Treron aromatica (Gmel.) Java. From the same.
" vernans (Linn.) Java. From the same.

Carpophaga myristicivora (Scop.) Australia. From M. Des Murs' Collection.
" luctuosa (Temm.) Australia. From Mr. J. Gould's Collection.
" norfolciensis (Lath.) Australia. From the same.
" magnifica (Temm.) Australia. Presented by Mr. E. Wilson.

Columba ænas Linn. England. From M. Des Murs' Collection.
" palumbus Linn. France. From the same.
" livia Briss. France. From the same.
" " England. Presented by Mr. E. Wilson.
" guinea Linn. Africa. From M. Des Murs' Collection.
" araucana Less. Chili. From the same.
" cœrulea Temm. Brazil. From the same.
" Fitzroyi King. Chili. From the same.
" gymnopthalmos Temm. Brazil. From the same.
" corensis Gmel. Brazil. From the same.
" rufina Temm. Cayenne. From the same.

Ectopistes migratorius (Linn.) Ohio. Presented by Wm. Gambel, M. D.
" carolinensis (Linn.) Pennsylvania. From the same.
" " Cuba. From M. La Sagra's Collection.
" " California. Presented by A. L. Heermann, M. D.

Geopelia humeralis (Temm.) Australia. From Mr. J. Gould's Collection.
" cuneata (Lath.) Australia. From the same.
" tranquilla Gould. Australia. From the same.
" striata (Linn.) Java. From M. Des Murs' Collection.

Macropygia amboinensis (Linn.) Java. From the same.

Aena capensis (Linn.) Island of Lucon. From the same.

Turtur auritus Ray. France. From the same.
" bitorquatus (Temm.) Java. From the same.
" " Africa. From the same.
" risorius (Linn.) France. From the same.
" chinensis (Scop.) Java. From the same.

Columbina picui (Temm.) Chili. From the same.
" strepitans Spix. Brazil. From the same.
" campestris Spix. Brazil. From the same.

Zenaida amabilis Pr. Bonap. Brazil. From the same.
" aurita (Temm.) Chili. From the same.

Chamæpelia passerina (Linn.) Georgia. Presented by T. B. Wilson, M. D.
" talpacoti (Temm.) Brazil. From M. Des Murs' Collection.
" minuta (Linn.) Brazil. From the same.

Peristera montana (Linn.) Florida. Presented by T. B. Wilson, M. D.

Ocyphaps lophotes (Temm.) Australia. From Mr. J. Gould's Collection.

Phaps chalcoptera (Lath.) Australia. From the same.
" histrionica Gould. Australia. From the same.
" elegans (Temm.) Australia. Presented by Mons. J. Verreaux.

Geophaps Smithii (Jard. and Selby.) Australia. From Mr. J. Gould's Collection.
" scripta (Temm.) Australia. From the same.

Calænas luzonica (Scop.) Java. Presented by T. B. Wilson, M. D.

5th Order GALLINÆ.

I. Family CRACIDÆ.

Ortalida katraca (Bodd.) Brazil. From M. Des Murs' Collection.

Penelope pipile (Jacq.) Paraguay. From the same.
" cristata (Linn.) Mexico. From the same.
" marail Gmel. Brazil. From the same.
" obscura Illig. Brazil. From the same.
" pileata Licht. Paraguay. From the same.
" aburri Goudot. New Grenada. From the same.

Crax globicera Linn. S. America. From the same.

Pauxi galeata (Lath.) Mexico. From the same.

II. Family MEGAPODIDÆ.

Tallegallus Lathamii (Gray.) Australia. From Mr. J. Gould's Collectio

Megacephalon rubripes (Quoy & Gaim.) Celebes Islands. Presented b
T. B. Wilson, M. D.

Megapodius tumulus Gould. Australia. From Mr. J. Gould's Collection.
" rubripes Temm. Timor Asia. From Mons. Des Murs' Collectio
" Reinwardtii Wagl. Celebes. From the same.

Leipoa ocellata Gould. Australia. From Mr. J. Gould's Collection.

III. Family PHASIANIDÆ.

Pavo cristatus Linn. India. From Mons. Des Murs' Collection.
" Var. alba. France. From the same.
" muticus (Linn.) Japan. From the same.

Argus giganteus Temm. Japan. From the same.

Phasianus colchicus Linn. France. From the same.
" torquatus Gmel. France. From the same.

Thaumalia picta (Linn.) Asia. From the same.

Gallophasis nyctemerus (Linn.) Asia. From the same.
" leucomelanos (Lath.) Bengal. From the same.

Gallus Bankiva Temm. India. From the same.
" domesticus. France. From the same.

Gallus domesticus Var. russicus. France. From the same.
" " " nanus. France. From the same.
" " " greenlandicus. France. From the same.
" " " lagopus. France. From the same.
" " " pomeranus. France. From the same.
" lanatus (Linn.) Java. From the same.
" varius (Shaw.) Java. From the same.
" sonneratii Temm. Asia. From the same.
" ecaudatus (Linn.) France. From the same.
" giganteus Temm. Java. From the same.

Meleagris gallopavo Linn. United States. From the same.
" " France. From the same.

Numida meleagris Linn. Africa. From the same.
" " France. From the same.

Tetraogallus caucasicus (Pall.) Asia. Presented by Mr. Edward Wilson.

IV. Family TETRAONIDÆ.

Francolinus Le Vaillantii (Valenc). Africa. From M. Des Murs' Collection.
" afer (Lath). Africa. From the same.
" capensis (Gmel.) Africa. From the same.
" nudicollis (Gmel.) Africa. From the same.
" clamator (Temm.) Africa. From the same.

Perdrix cinerea (Linn.) France. From the same.

Coturnix communis Bonn. France. From the same.
" " Africa. From the same.
" australis (Lath.) Australia. From Mr. J. Gould's Collection.
" pectoralis Gould. Australia. From the same.
" Diemenensis (Gould.) Australia. From the same.
" chinensis (Linn.) Java. Presented by Mons. J. Verreaux.
" coromandelica (Gmel.) India. Presented by Mr. E. Wilson.

Caccabis rufa (Linn.) France. From Mons. Des. Murs' Collection.
" " Spain. From the same.
" graeca (Briss.) Switzerland. From the same.
" petrosa (Lath.) France. From the same.
" " Africa. From the same.
" chukar (Gray.) India. Presented by Mr. E. Wilson.

Turnix pugnax (Temm.) Java. From Mons. Des Murs' Collection.
" varius (Lath.) Australia. From Mr. J. Gould's Collection.
" velox Gould. Australia. From the same.
" pyrrhothorax Gould. Australia. From the same.
" castanotus Gould. Australia. From the same.
" scintillans (Gould.) Australia. From the same.

Odontophorus dentatus (Temm.) Brazil. From Mons. Des Murs' Collection.

Ortyx virginianus (Linn.) Pennsylvania. From the same.
" nigrogularis Gould. Yucatan. Presented by T. B. Wilson, M. D.

Callipepla californica (Lath.) California. Presented by A. L. Heermann, M. D.

Tetrao urogallus Linn. Spanish Pyrenees. From Mons. Des Murs' Collection.
" hybridus Linn. Switzerland. From the same.
" tetrix Linn. Switzerland. From the same.
" obscurus Say. Rocky Mountains. From the same.
" canadensis Linn. Nova Scotia. Presented by T. B. Wilson, M. D.
" phasianellus Linn. Missouri. From the same.
" cupido Linn. Illinois. Presented by A. L. Heermann, M. D.

Bonasa umbellus (Linn.) Pennsylvania. Presented by Mr. S. Ashmead.
" sylvestris Brehm. Switzerland. From Mons. Des Murs' Collection.

Lagopus scoticus (Lath.) Scotland. From the same.
" albus (Gmel.) Russia. From the same.
" mutus Leach. Switzerland. From the same.
" islandorum Faber. Iceland. From the same.

Pterocles alchata (Linn.) French Pyrenees. From the same.
" arenarius (Pall.) Spain. From the same.
" fasciatus (Scop.) Africa. From the same.
" exustus Temm. Syria in Asia. From the same.

VI. Family TINAMIDÆ.

Tinamus tao (Temm.) Brazil. From Mons. Des Murs' Collection.
“ major (Linn.) Brazil. From the same.
“ vermiculatus (Temm.) Mexico. From the same.
“ cinereus (Gmel.) Brazil. From the same.
“ noctivagus Pr. Max. Brazil. From the same.
“ variegatus (Gmel.) Brazil. From the same.
“ undulatus Temm. Peru. From the same.
“ sovi (Gmel.) Brazil. From the same.
“ tatapau Temm. Chili. From the same.

Nothura Boraquira (Spix.) Rio Janiero. From the same.
“ minor (Spix.) Brazil. From the same.
“ nana (Temm.) Paraguay. From the same.
“ maculosa (Temm.) Brazil. From the same.

Rhynchotus rufescens (Temm.) Buenos Ayres. From the same.

6th Order STRUTHIONES.

I. Family STRUTHIONIDÆ.

Struthio camelus Linn. Africa. From M. Des Murs' Collection.

Rhea americana Lath. Brazil. From the same.
“ Darwinii Gould. Brazil. From the same.

Dromaius Novæ Hollandiæ (Lath.) Australia. From Mr. J. Gould's Collection.

Casarius emu Lath. Ind. Archipelago. From M. Des Murs' Collection.

Apteryx australis Shaw. Australia. Presented by T. B. Wilson, M. D.

Otis tarda Linn. France. From M. Des Murs' Collection.
“ tetrax Linn. France. From the same.

Eupodotis Edwardsii (Gray.) India. Presented by Mr. E. Wilson.
“ australis (Gray.) Australia. From Mr. J. Gould's Collection.
“ Denhami (Childr.) Africa. From M. Des Murs' Collection.
“ caffra (Licht.) Africa. From the same.
“ Ludwigii (Rupp.) Africa. From the same.
“ Vigorsii (A. Smith.) Africa. From the same.
“ undulata (Jacq.) Africa. From the same.
“ aurita (Lath.) Bombay. From the same.

7th Order GRALLÆ.

I. Family CHARADRIDÆ.

Œdicnemus crepitans Temm. France. From M. Des Murs' Collection.
“ “ Africa. From the same.
“ maculosus Temm. Africa. From the same.
“ bistriatus (Wagl.) From the same.
“ grallarius (Lath.) Australia. From Mr. J. Gould's Collection.

Esacus magnirostris (Geoff.) Australia. From the same.

Pluvianus Ægyptius (Linn.) Egypt. From M. Des Murs' Collection.

Cursorius coromandelicus (Gmel.) Asia. From the same.
“ bicinctus Temm. Africa. From the same.

Glareola pratincola (Linn.) France. From the same.

Vanellus cristatus Meyer. France. From M. Des Murs' Collection.
" " Laponia. From the same.
" " England. From the same.
" cayennensis (Gmel.) Paraguay. From the same.

Lobivanellus personata Gould. Australia. From Mr. J. Gould's Collection.

Hoplopterus spinosus (Linn.) Asia. From M. Des Murs' Collection.
" persicus (Bonn.) Africa. From the same.
" coronatus (Bodd.) Africa. Presented by Mr. E. Wilson.

Charadrius pluvialis Linn. France. From M. Des Murs' Collection.
" morinellus Linn. France. From the same.
" vociferus Linn. Maryland. Presented by A. L. Heermann, M.D.
" " Cuba. From M. La Sagra's Collection.
" hiaticula Linn. France. From M. Des Murs' Collection.
" curonicus Beseke. France. From the same.
" cantianus Lath. France. From the same.
" bicinctus Jard. and Selby. Australia. From the same.
" ruficapillus Temm. Australia. From Mr. J. Gould's Collection.
" collaris Vieill. Buenos Ayres. From M. Des Murs' Collection.
" Wilsonius Ord. N. Jersey. Presented by A. L. Heermann, M. D.
" melodus Ord. N. Jersey. From the same.
" semipalmatus Kaup. Labrador. From M. Des Murs' Collection.
" xanthocheilus Wagl. N. S. Wales. Presented by M. J. Verreaux.

Hæmatopus ostralegus Linn. France. From M. Des Murs' Collection.
" palliatus Temm. N. Jersey. Presented by A. L. Heermann, M.D.
" niger Cuv. Australia. From M. Des Murs' Collection.
" capensis Licht. Africa. From the same.
" fuliginosus Gould. Australia. From Mr. J. Gould's Collection.
" longirostris Vieill. Australia. From the same.

Cinclus interpres (Linn.) Germany. From M. Des Murs' Collection.

II. Family ARDEIDÆ.

Psophia crepitans Linn. Amazon River. Presented by Mr. W. H. Edwards.

Grus cinerea Bechst. Germany. From M. Des Murs' Collection.
" carunculata (Gmel.) Africa. From the same.
" antigone (Linn.) Asia. From the same.
" canadensis (Linn.) Wisconsin. Presented by A. L. Heermann, M. D.
" australiana Gould. Australia. From Mr. J. Gould's Collection.

Scops virgo (Linn.) Africa. From M. Des Murs' Collection.
" paradisea (Licht.) Africa. From the same.

Eurypyga helias (Pall.) Paraguay. From the same.

Ardea cinerea Linn. France. From the same.
" melanocephala Childr. and Vig. Africa. From the same.
" herodias Linn. Pennsylvania. From the same.
" " Amazon River. Presented by Mr. W. H. Edwards.
" purpurea Linn. England. Presented by T. B. Wilson, M. D.
" pacifica Lath. Australia. From Mr. J. Gould's Collection.
" alba Gmel. Europe. Presented by Mr. E. Wilson.
" egretta Gmel. N. Jersey. Presented by S. W. Woodhouse, M. D.
" " Amazon River. Presented by Mr. W. H. Edwards.
" " France. From M. Des Murs' Collection.
" garzetta Linn. France. From the same.

Ardea candidissima Gmel. N. Jersey. From M. Des Murs' Collection.
" rufa Bodd. Florida. Presented by Mr. J. J. Audubon.
" Pealii Pr. Bonap. Florida. From M. Des Murs' Collection.
" leucogaster Gmel. Florida. Presented by A. L. Heermann, M.D.
" cœrulea Linn. Florida. From the same.
" novæ hollandiæ Lath. Australia. From Mr. J. Gould's Collection.
" jugularis Forst. Australia. From the same.
" comata Pall. Hungary. From M. Des Murs' Collection.
" minuta Linn. France. From the same.
" exilis Gmel. Pennsylvania. Presented by Professor Baird.
" virescens Linn. Pennsylvania. From M. Des Murs' Collection.
" grisea Bodd. Chili. From the same.
" flavicollis Lath. Australia. From Mr. J. Gould's Collection.
" picata Gould. Australia. From the same.
" leucoptera Bodd. Australia. From the same.
" coromanda Bodd. Europe. From M. Des Murs' Collection.
Botaurus stellaris (Linn.) France. From the same.
" lentiginosus Mont. California. Presented by A. L. Heerm
M.D.
" " Missouri. Presented by G. C. Leib, M.D.

Nycticorax nævius (Bodd.) Florida. Presented by A. L. Heermann, M.
" caledonicus (Gmel.) Australia. From Mr. J. Gould's Collect
" violaceus (Linn.) Florida. Presented by T. B. Wilson, M.
" griseus (Linn.) Europe. From the same.

Platalea leucorodia Linn. Germany. From M. Des Murs' Collection.
" ajaja Linn. Amazon River. Presented by Mr. W. H. Edward

Ciconia alba Briss. Germany. From M. Des Murs' Collection.
" nigra Bechst. Russia. From the same.

Tantalus loculator Linn. Amazon River. Presented by Mr. W. H. Edwar

Ibis rubra (Linn.) Brazil. From M. Des Murs' Collection.
" falcinellus (Linn.) Hungary. From the same.
" alba (Linn.) Florida. Presented by Mr. J. J. Audubon.

III. Family SCOLOPACIDÆ.

Numenius arcuatus (Linn.) Germany. From M. Des Murs' Collection.
" phæopus (Linn.) Germany. From the same.

Limosa ægocephala (Linn.) England. Presented by T. B. Wilson, M. D.
" lapponica (Linn.) Holland. From M. Des Murs' Collection.

Totanus calidris (Linn.) France. From the same.
" ochropus (Linn.) Savoy. From the same.
" flavipes (Gmel.) Pennsylvania. Presented by Mr. S. Ashmead.
" semipalmatus (Gmel.) France. From M. Des Murs' Collection.
" " N. Jersey. Presented by Mr. John Krider.
" chloropygius Vieill. Pennsylvania. Presented by A. L. Heermann
M. D.

Tringoides hypoleuca (Linn.) France. From M. Des Murs' Collection.
" macularia (Linn.) Maryland. Presented by A. L. Heermann, M.D
" Bartramius (Wils.) Missouri. Presented by Wm. Gambel, M. D

Recurvirostra avocetta Linn. France. From M. Des Murs' Collection.
" americana Gmel. Rocky Mts. Presented by A. L. Heermann, M. D.

Himantopus candidus Bonn. N. Africa. Presented by T. B. Wilson, M. D.

Philomachus pugnax (Linn.) Germany. From M. Des Murs' Collection.

Tringa maritima Brün. Iceland. From the same.
“ rufescens Vieill. Labrador. From the same.
“ cinclus Linn. Sweden. From the same.
“ schinzii Brehm. Labrador. From the same.
“ canutus Linn. Iceland. From the same.

Calidris arenaria (Linn.) Norway. From the same.

Gallinago major (Gmel.) Africa. From the same.
“ media Steph. France. From the same.
“ gallinula (Linn.) France. From the same.
“ Wilsonii (Temm.) Nova Scotia. Presented by T. B. Wilson, M.D.
“ undulata (Bodd.) Brazil. From M. Des Murs' Collection.

Scolopax rusticola Linn. France. From the same.

Philohela minor (Gmel.) Pennsylvania. From the same.

Rhynchæa capensis (Linn.) Africa. From the same.

Phalaropus fulicarius (Linn.) Iceland. From the same.
“ hyperboreus (Linn.) Iceland. From the same.

IV. Family PALAMEDEIDÆ.

Para jacana Linn. Brazil. From M. Des Murs' Collection.

Palamedea cornuta Linn. Brazil. From the same.

Chauna chavaria (Linn.) Paraguay. From the same.

V. Family RALLIDÆ.

Rallus aquaticus Linn. France. From M. Des Murs' Collection.
“ virginianus Linn. N. Jersey. Presented by Mr. J. Krider.
“ crepitans Gmel. N. Jersey. From the same.
“ elegans Aud. S. Carolina. Presented by T. B. Wilson, M. D.
“ superciliosus Swains. Sumatra. From M. Des Murs' Collection.
“ philippensis Linn. Australia. From Mr. J. Gould's Collection.
“ pectoralis Cuv. Australia. From the same.

Aramus scolopaceus (Gmel.) Paraguay. From M. Des Murs' Collection.

Ortygometra crex (Gmel.) France. From the same.
“ carolina (Linn.) Massachusetts. Presented by T. B. Wilson, M. D.
“ porzana (Linn.) France. From M. Des Murs' Collection.
“ jamaicensis (Gmel.) N. Jersey. Presented by Mr. S. Ashmead.
“ affinis G. R. Gray. Australia. From M. Des Murs' Collection.
“ minuta (Pall.) Spain. From the same.

Aramides gigas (Spix.) Brazil. From the same.
“ maculatus (Bodd.) Paraguay. From the same.
“ cesius (Spix.) Paraguay. From the same.
“ cayennensis (Gmel.) Cayenne. From the same.

Eulabeornis castaneoventris Gould. Australia. From Mr. J. Gould's Collection.

Corethrura rubiginosa (Temm.) Sumatra. From M. Des Murs' Collection.
“ fasciata (Raffl.) Java. From the same.
“ fusca (Linn.) Sumatra. From the same.

Porphyrio martinica (Linn.) Louisiana. From the same.

Porphyrio melanocephalus (Gmel.) Cayana. From M. Des Murs' Collection.
" purpureus (Gmel.) Brazil. From the same.

Tribonyx Mortieri Dubus. Australia. From Mr. J. Gould's Collection.
" ventralis (Gould.) Australia. From the same.

Gallinula chloropus (Linn.) France. From M. Des Murs' Collection.
" phænicura (Penn.) Java. From the same.
" crassirostris (Gray.) Brazil. From the same.
" galeata Pr. Max. Florida. Presented by J. J. Audubon.

Fulica atra Linn. France. From M. Des Murs' Collection.
" cristata Gmel. Africa. From the same.
" armillata Vieill. Chili. From the same.
" gigantea Eyd. et Souley. Peru. From the same.
" americana Gmel. California. Presented by A. L. Heermann, M. D

8th Order ANSERES.

I. Family ANATIDÆ.

Phœnicopterus antiquorum Temm. France. From M. Des Murs' Collection.
" " Barbary. Presented by T. B. Wilson, M. D.

Plectropterus gambensis (Linn.) Africa. From M. Des Murs' Collection.

Chenalopex ægyptiacus (Linn.) Egypt. From the same.

Cereopsis novæ hollandiæ Lath. Australia. From Mr. J. Gould's Collection.

Anser ferus Gesn. France. From M. Des Murs' Collection.
" segetum (Gmel.) Norway. From the same.
" brachyrynchus Baill. Europe. From the same.
" erythropus (Linn.) Russia. From the same.
" cygnoides (Linn.) China. From the same.

Bernicla canadensis (Linn.) Missouri. From the same.

Nettapus pulchellus Gould. Australia. From Mr. J. Gould's Collection.

Cygnus olor (Gmel.) France. From M. Des Murs' Collection.
" " England. Presented by T. B. Wilson, M. D.
" ferus Ray. Northern Europe. From M. Des Murs' Collection.
" nigricollis (Gmel.) Chili. From the same.
" atrata (Lath.) Australia. From Mr. J. Gould's Collection.

Dendrocygna arcuata (Cuv.) Australia. From the same.
" " Nepaul, India. Presented by Mr. E. Wilson.
" viduata (Linn.) S. America. From M. Des Murs' Collection.

Tadorna vulpanser Flem. England. From the same.
" " France. From the same.
" nævosa (Gould.) Australia. From Mr. J. Gould's Collection.

Aix sponsa (Linn.) Virginia. From M. Des Murs' Collection.
" " Cuba. From M. La Sagra's Collection.
" galericulata (Linn.) China. Presented by Mr. E. Wilson.

Mareca penelope (Linn.) Northern Europe. From M. Des Murs' Collection.

Dafila acuta (Linn.) Iceland. From the same.

Anas boschas Linn. France. From the same.
" " Nova Scotia. Presented by T. B. Wilson, M. D.
" " California. Presented by A. L. Heermann, M. D.
" superciliosa Gmel. Australia. From Mr. J. Gould's Collection.

Anas obscura Gmel. N. Jersey. Presented by Mr. S. Ashmead.
" punctata Burch. Australia. From Mr. J. Gould's Collection.

Querquedula crecca (Linn.) Holland. From M. Des Murs' Collection.
" Ipecuturi (Vieill.) Rio de la Plata. From the same.

Pterocyanea circia (Linn.) Hungary. From the same.
" discors (Linn.) Missouri. Presented by A. L. Heermann, M. D.
" cœruleata (Licht.) California. From the same.

Chaulelasmus strepera (Linn.) Holland. From M. Des Murs' Collection.

Spatula clypeata (Linn.) Rocky Mts. Presented by A. L. Heermann, M.D.
" " Holland. From M. Des Murs' Collection.

Cairina moschata (Linn.) Brazil. From the same.

Branta rufina (Pall.) Sicily. From the same.
" " Lucknow. Presented by T. B. Wilson, M. D.

Fuligula cristata (Ray.) Iceland. From M. Des Murs' Collection.
" marila (Linn.) Iceland. From the same.

Nyroca ferina (Linn.) Saxony. From the same.
" leucopthalma (Bechst.) Saxony. From the same.

Hybridus N. Valesneria (Wils.) et Anas boschas Linn. Pennsylvania. Presented by Professor Baird.

Clangula glaucion (Linn.) Northern Europe. From M. Des Murs' Collection.
" islandica (Gmel.) Iceland. From the same.
" histrionica (Linn.) Iceland. From the same.

Harelda glacialis (Linn.) Sweden. From the same.

Somateria molissima (Linn.) Spitzberg. From the same.

Oidemia nigra (Linn.) Iceland. From the same.
" velvetina Cassin. Labrador. From the same.
" perspicillata (Linn.) Labrador. From the same.

Biziura lobata (Shaw.) Australia. From Mr. J. Gould's Collection.

Erismatura leucocephala (Scops.) Europe. From M. Des Murs' Collection.
" australis (Gould.) Australia. From Mr. J. Gould's Collection.

Mergus castor Linn. Norway. From M. Des Murs' Collection.
" serrator Linn. Sweden. From the same.
" " Bay of Fundy. Presented by T. B. Wilson, M. D.
" cucullatus Linn. Labrador. From M. Des Murs' Collection.

II. Family COLYMBIDÆ.

Colymbus glacialis Linn. Northern Europe. From M. Des Murs' Collection.
" arcticus Linn. Northern Europe. Presented by Mr. E. Wilson.
" septentrionalis Linn. Iceland. From M. Des Murs' Collection.

Podiceps cristatus (Linn.) Northern Europe. From the same.
" arcticus Boie. Iceland. From the same.
" grisegena (Bodd.) Northern Europe. From the same.
" " Africa. From the same.
" auritus (Linn.) Europe. Presented by T. B. Wilson, M. D.
" minor (Gmel.) Europe. From M. Des Murs' Collection.
" cornutus (Gmel.) Germany. From the same.
" Philippensis (Bonn.) Java. From the same.
" novæ hollandiæ Steph. Australia. From Mr. J. Gould's Collection.

Podilymbus carolinensis (Lath.) Missouri. Presented by A. L. Heermann, M. D.
“ “ From M. La Sagra's Collection.

III. Family ALCIDÆ.

Alca impennis Linn. Arctic Europe. From M. Des Murs' Collection.
“ torda Linn. Iceland. From the same.
“ “ Labrador. From the same.

Fratercula glacialis (Leach.) Northern Europe. From the same.
“ “ Labrador. Presented by T. B. Wilson, M. D.
“ arctica (Linn.) Normandy. From M. Des Murs' Collection.
“ cirrhata (Gmel.) California. Presented by A. L. Heermann, M. D.

Spheniscus demersus (Linn.) Cape Good Hope. From M. Des Murs' Collection.
“ magellanicus (Forst.) Cape Good Hope. Presented by Mr. E. Wilson.

Eudyptes antarctica (Forst.) Antarctic Ocean. From M. Des Murs' Collection.
“ chrysocome (Forst.) S. African Coast. From the same.
“ torquata (Forst.) Antarctic Ocean. From the same.
“ minor (Forst.) S. African Coast. From the same.
“ “ Australia. From Mr. J. Gould's Collection.

Aptenodytes Forsteri G. R. Gray. Southern Ocean. From M. Des Murs' Collection.

Uria grylle (Linn.) Arctic Europe. From the same.
“ “ Labrador. Presented by T. B. Wilson, M. D.
“ “ California. Presented by A. L. Heermann, M. D.
“ Mandtii Licht. Arctic Europe. From M. Des Murs' Collection.
“ troile (Linn.) N. Europe. From the same.
“ “ Newfoundland. From the same.
“ Brunichii Sabine. Iceland. From the same.
“ “ California. Presented by A. L. Heermann, M. D.
“ ringvia Brünn. Iceland. From M. Des Murs' Collection.

IV. Family PROCELLARIDÆ.

Puffinus major Faber. Sardinia. From M. Des Murs' Collection.
“ sphenurus Gould. Australia. From the same.
“ anglorum Ray. England. From the same.
“ obscurus (Gmel.) Europe. Presented by T. B. Wilson, M. D.
“ chlororhynchus Less. Australia. From Mr. J. Gould's Collection.
“ carnipes Gould. Australia. From the same.
“ brevicaudus Gould. Australia. From the same.
“ æquinoctialis (Linn.) Island of Bourbon. From M. Des Murs' Collection.

Thalassidroma pelagica (Linn.) Sardinia. From the same.
“ Leachi (Temm.) France. From the same.
“ “ Bay of Fundy. Presented by T. B. Wilson, M. D.
“ Bulwerii (Jard. and Selby.) Madeira. From the same.
“ Marina (Linn.) Australia. From Mr. J. Gould's Collection.

Procellaria gigantea Gmel. Antarctic Circle. From M. Des Murs' Collection.
“ glacialis Linn. Northern Europe. From the same.
“ “ Malouine Islands. From the same.
“ solandri Gould. Australia. From Mr. J. Gould's Collection.

Prion vittata (Gmel.) Antarctic Ocean. From Mr. J. Gould's Collection.

Diomedea exulans Linn. Van Diemen's Land. From the same.
" " S. African Coast. From M. Des Murs' Collection.
" cauta Gould. Australia. From Mr. J. Gould's Collection.
" chlororhyncha Gmel. Cape Horn. From M. Des Murs' Collection.
" fuliginosa Gmel. Gape Horn. From the same.

V. Family LARIDÆ.

Stercorarius parasiticus (Brün.) Labrador. From M. Des Murs' Collection.
" cephus (Brün.) England. From the same.
" catarrhactes (Linn.) Iceland. From the same.
" " Great Britain. Presented by T. B. Wilson, M. D.

Rhodostethia Rossi (Sabine.) Arctic Circle. From M. Des Murs' Collection.

Larus glaucus Brunn. Spitzberg. From the same.
" " Greenland. From the same.
" marinus Linn. Europe. From the same.
" " Labrador. From the same.
" leucopterus Faber. France. From the same.
" " Labrador. Presented by T. P. Wilson, M. D.
" argentatus Brünn. France. From M. Des Murs' Collection.
" " Labrador. From the same.
" occidentalis Aud. California. Presented by A. L. Heermann, M. D.
" fuscus Linn. France. From M. Des Murs' Collection.
" pacificus Lath. Australia. From Mr. J. Gould's Collection.
" novæ hollandiæ Steph. Australia. From the same.
" crassirostris Vieill. Van Diemen's Land. From Mons. Des Murs' Collection.
" ichthyaetus Pall. Eastern Europe. From the same.
" canus Linn. Europe. From the same.
" zonorhynchus Rich. and Swains. Labrador. Presented by T. B. Wilson, M. D.
" Audouinii Payr. Poland. From M. Des Murs' Collection.
" ridibundus Linn. France. From the same.
" capistratus Pr. Bonap. Europe. From the same.
" atricillus Linn. N. Jersey. Presented by Wm. Gambel, M. D.
" " Europe. From M. Des Murs' Collection.
" leucopthalmus Licht. Southern France. From the same.
" gelastes Licht. Southern France. From the same.
" cirrocephalus Vieill. Buenos Ayres. From the same.

Xema Sabinei Leach. Europe. From the same.

Rissa tridactyla (Lath.) England. Presented by T. B. Wilson, M. D.
" " Labrador. From the same.

Rhyncops nigra Linn. N. Jersey. Presented by Mr. J. Krider.
" melanura Swains. S. America. From M. Des Murs' Collection.
" albirostris Licht. Africa. From the same.

Sterna caspia Pall. France. From M. Des Murs' Collection.
" pelicanoides Vig. Australia. From Mr. J. Gould's Collection.
" poliocercus Gould. Australia. From the same.
" affinis Rupp. Java. From M. Des Murs' Collection.
" cayennensis Gmel. Florida. Presented by A. L. Heermann, M. D.
" " Amazon River. Presented by Mr. W. H. Edwards.
" anglica Mont. France. From M. Des Murs' Collection.
" " New Jersey. Presented by Mr. J. Krider.

Sterna strenuus Gould. Australia. From Mr. J. Gould's Collection.
" fuliginosa Gmel. Australia. From the same.
" " Tortugas Islands. Presented by A. L. Heermann, M.D.
" panaya Gould. Australia. From Mr. J. Gould's Collection.
" acutiflavida Cabot. Florida. Presented by A. L. Heermann, M. D.
" cantiaca Gmel. France. From M. Des Murs' Collection.
" hirundo Linn. France. From the same.
" " Africa. From the same.
" macroura Naum. Iceland. From the same.
" " N. Jersey. Presented by A. L. Heermann, M. D.
" Wilsonii Pr. Bonap. N. Jersey. From the same.
" paradisea Brün. Europe. From M. Des Murs' Collection.
" minuta Linn. France. From the same.
" argentea Pr. Max. New Jersey. Presented by Mr. J. Krider.
" melanauchen Temm. Timor, Asia. From M. Des Murs' Collection.
" speculifera Temm. Paraguay. From the same.
" nereis Gould. Australia. From Mr. J. Gould's Collection.

Hydrochelidon hybrida (Pall.) France. From M. Des Murs' Collection.
" nigra (Linn.) France. From the same.
" leucoptera (Temm.) Greece. From the same.

Anous stolidus (Linn.) Portugal. From the same.
" " Australia. From Mr. J. Gould's Collection.
" " Tortugas Islands. Presented by A. L. Heermann, M. D.
" melanops Gould. Australia. From Mr. J. Gould's Collection.
" gracilis Gould. Australia. From the same.
" leucocapillus Gould. Australia. From the same.
" tereticollis (Lafr.) Australia. From the same.

VI. Family PELICANIDÆ.

Phæton æthereus Linn. Island of Bourbon. From M. Des Murs' Collection.
" rubricauda Bodd. Australia. From Mr. J. Gould's Collection.
" candidus (Briss.) Brazil. From M. Des Murs' Collection.

Plotus anhinga Linn. Florida. Presented by T. B. Wilson, M. D.
" melanogaster Gmel. Brazil. From M. Des Murs' Collection.
" congensis Leach. Africa. From the same.

Sula bassana (Linn.) Holland. From the same.
" " Labrador. Presented by E. Harris, M. D.
" capensis Licht. Africa. From M. Des Murs' Collection.
" cyanops Sunder. Australia. From Mr. J. Gould's Collection.
" personata Gould. Australia. From the same.
" piscator (Linn.) Australia. From the same.
" fusca Vieill. Australian Coast. From the same.

Graculus carbo (Linn.) Holland. From M. Des Murs' Collection.
" Sinensis (Shaw.) Antarctic America. From the same.
" carboides (Gould.) Australia. From Mr. J. Gould's Collection.
" cristatus (Fabr.) France. From M. Des Murs' Collection.
" Linnæi Gray. Africa. From the same.
" Desmarestii (Payr.) Corsica. From the same.
" dilophus (Vieill.) Labrador. Presented by T. B. Wilson, M. D.
" floridianus (Aud.) Florida. Presented by A. L. Heermann, M. D.

GRACULUS TOWNSENDII (Aud.) California. Presented by A. L. Heermann, M. D.
" VIOLACEUS (Gmel.) California. From the same.
" GAIMARDII (Garn.) Chili. From M. Des Murs' Collection.
" LEUCOGASTER (Gould.) Australia. From Mr. J. Gould's Collection.
" PYGMÆUS (Pall.) Europe. From M. Des Murs' Collection.
" MELANOLEUCUS (Vieill.) Australia. From Mr. J. Gould's Collection.
" AFRICANUS (Gmel.) Afriaa. Presented by T. B. Wilson, M. D.

PELECANUS ONOCROTALUS (Linn.) Africa. From M. Des Murs' Collection.
" CONSPICILLATUS Temm. Australia. From Mr. J. Gould's Collection.
" FUSCUS Linn. Florida. Presented by A. L. Heermann, M.D.
" " Texas. From M. Des Murs' Collection.

ATAGEN AQUILA (Linn.) Island of Ascension. From the same.

The foregoing catalogue of birds' eggs embraces 1323 determined species of 493 genera. Of these, 835 species, derived from all parts of the world, formed the celebrated and valuable collection of Mons. O. Des Murs, of Paris. The Australian species, numbering 246, accompanied the splendid collection of birds from that country, made by the distinguished ornithologist Mr. John Gould, of London, and which is now in the Museum of the Academy. The Cuba species belonged to the collection of the well known naturalist M. Ramon de la Sagra, and were presented by Mr. E. Wilson.

The whole of the two first collections were purchased by Dr. T. B. Wilson, and, with his usual liberality, presented to the Academy. The remainder consists of species presented by several individuals whose names are attached to their donations throughout the catalogue. Of undetermined eggs in the collections of M. Des Murs and Mr. Gould, there are 197 species.

CORRECTIONS.

Page 4. For leucostemus *read* leucosternus.
Page 11. Add *Lawrence* after Conirostum ornatum.

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Family HIRUNDINIDÆ.

I. *Subfamily HIRUNDININÆ.*

1. Genus HIRUNDO, Linn. *Syst. Nat.* i. p. 343, (1766.)

1. **HIRUNDO RUSTICA**, Linn. *Syst. Nat.* i. p. 343, (1766.) *Gould, B. of Eur.* ii. pl. 54.
   Hirundo domestica, *Auct. Antiq. et Pallas Zoog.* i. p. 528.
   Cecropis rustica et pagorum, *Brehm. Vög. Deut.* i. p 137, 138.
   " Hirundo albifrons, Rupp. Mus. Francof." *Bonap. Consp. Av.* p. 338.
   1, 2, 3, 4. Adult males, England. Presented by Edward Wilson, Esq.
   5. Female, England. Presented by the same.
   6. Adult male, Switzerland. Presented by A. L. Heermann, M. D.
   7. Adult, France, from the Rivoli collection.
   8, 9. Albinoes, France, from the same.
   10. Nearly adult, India, from Capt. Boys' collection.
   11. Adult, Japan. Presented by Lieut. Edward Brinley, Jr., U. S. Navy.

2. **HIRUNDO DOMICOLA**, Jerdon. *Madras Journal?*
   Hirundo dimidiata, *Sundeval. Ofversigt Kongl. Akad.*, April, 1850?
   Hirundo rusticoides. *Catalogue of Rivoli collection*, p. 18.
   " Hirundo rusticoides, Cuv." *Label on specimens in Rivoli collection.*
   " Hirundo rusticoides, Kuhl." *Boie in Isis*, 1844, p. 174?
   1. Nearly adult, Java, from the Rivoli collection.
   2. Younger, Java, from the same.
   3. This species? Abyssinia, from the Rivoli collection.

3. **HIRUNDO GUTTURALIS**, Scopoli. *Flor. et Faun. Insub.* pt. ii. p. 96, (1786,) *Pl. Col.* 83, fig. 2.
   Hirundo panayana, *Gm. Syst. Nat.* i. p. 1018, (1788.)
   Hirundo javanica, *Sparrman. Mus. Carls.* pl. 100. (1789.)
   Hirundo jewan, *Sykes. Proc. Zool. Soc., London*, 1832, pt. ii. p. 83.
   " Hirundo rustica, Linn." *Meyen Nova Acta.* xvi. *Suppl.* p. 72. pl. 10, fig. 1.
   " Hirundo rusticoides, Kuhl." *Bonap. Cons. Av.* p. 338.
   1. Adult male, Java, from the Rivoli collection.
   2. Adult, Java, from the same.

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" Hirundo albifrons, Rupp. Mus. Francof." *Bonap. Consp. Av.* p. 338.
1, 2, 3, 4. Adult males, England. Presented by Edward Wilson, Esq.
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8, 9. Albinoes, France, from the same.
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Hirundo javanica, *Sparrman. Mus. Carls.* pl. 100. (1789.)
Hirundo jewan, *Sykes. Proc. Zool. Soc., London*, 1832, pt. ii. p. 83.
" Hirundo rustica, Linn." *Meyen Nova Acta.* xvi. *Suppl.* p. 72. pl. 10, fig. 1.
" Hirundo rusticoides, Kuhl." *Bonap. Cons. Av.* p. 338.
1. Adult male, Java, from the Rivoli collection.
2. Adult, Java, from the same.

4. HIRUNDO RIOCOURII, Audouin. *Desc. de l'Egypt* i. pt. iv. p. 270, Ois. pl. 4 fig. 4, (1809.)
Hirundo Savignii, *Stephens. Gen. Zool.* x. p. 90, (1817.)
Hirundo cahirica, *Licht. Verz.* p. 58, (1823.) *Werner, Atlas Ois. d'Eur.* pl. 32.
Hirundo Boissoneauii, *Temm. Man.* pt. iv. p. 652.
Hiruudo castanea, *Less. Traité*, i. p. 268.
1. Adult, Africa, from the Rivoli collection.
2, 3. Nearly adult, Africa, from the same.
4. Adult, Monrovia, Western Africa, from Mr. Cassin's collection.

5. HIRUNDO RUFA, Gm. *Syst. Nat.* i. p. 1018. *Aud. B. of Am.* pl. 173.
Hirundo americana, *Wilson. Am. Orn.* v. p. 34, pl. 38, fig. 1, 2.
"Hirundo rustica, Linn." *Aud. Orn. Biog.* ii. p. 413.
Hirundo erythrogaster, *Bodd. Tab. Pl. Enl.* p. 45 ? *Buff. Pl. Enl.* 724, fig. 1 ?
Hirundo cyanopyrrha, *Vieill. Nouv. Dict.* xiv. p. 510 ?
Hirundo horreorum, *Barton. Fragments Nat. Hist. Penna.* p. 17, (1799.)
1. Adult male, Pennsylvania, from Mr. Krider's collection.
2. Adult female, Pennsylvania. Presented by George C. Leib, M. D.
3. Young, Pennsylvania, from Mr. Krider's collection.
4, 5. Albinoes, Pennsylvania, from the same.
6. Adult male, North America, from the Rivoli collection.
7. Adult male, Bolivia, from the same.
8, 9. Adults, Cayenne, from the same.
10. Adult, Para, Brazil, from the same.

6. HIRUNDO FRONTALIS, Quoy et Gaim. *Voy. de l'Astr.* pl. 12, fig. 1. (1833.)
Hirundo neoxena, *Gould. Proc. Zool. Soc. London,* 1812, p. 131. *B. of Aust.* ii. pl. 13.
"Hirundo javanica, Sparm." *Horsf. and Vig. Trans. Linn. Soc. London,* xv. p. 191.
Hirundo pacifica, *Lath. Ind. Orn. Supp.* p. 58 ?
"Hirundo frontalis, Quoy et Gaim. nec Say." *Bonap. Consp. Av.* p. 338 (*ubi Say?*)
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3. Adult male, Van Diemen's land, from the same.
4. Adult female, Van Diemen's land, from the same.

7. HIRUNDO ALBIGULARIS, Strickland. *Jard. Cont.* 1849, pl. 15.
"Hirundo rufifrons, Vieill." *Less. Traité*, i. p. 268.
"Hirundo rufifrons, Less. nec Shaw nec Vieill." *Bonap. Cons. Av.* p. 338.
1, 2. Adults, South Africa, from the Rivoli collection.

8. HIRUNDO SCAPULARIS, Cassin. *Proc. Acad. Philada.* v. pl. 12, fig. 1.
1. Adult, Southern Africa, from the Rivoli collection.

4. **Petrochelidon thalassina**, (Sw.) *Aud. B. of Am.* pl. 385, fig. 4, 5.
Hirundo thalassina, *Swains. Philos. Mag.* 1827, p. 366.
" Hirundo viridis? Licht." *Bonap. Consp. Av.* p. 341.
"Hirundo sericea." *Label on specimens from Messrs. Verreaux, of Paris.*
1. Adult male, Oregon, from Dr. Townsend's collection.
2. Adult female, Oregon, from the same.
3. Adult male, California, from Dr. Gambel's collection.
4. Adult, Mexico, from the Rivoli collection.
5, 6. Adults, Mexico.

5. **Petrochelidon albiventer**, (Bodd.) *Buff. Pl. Enl.* 546, fig. 2.
Hirundo albiventer, *Bodd. Tab. Pl. Enl.* p. 32.
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1. Adult, Surinam. Presented by C. Hering, M. D.
2. Adult, Cayenne, from the Rivoli collection.
3. Adult, Brazil, from the same.
4. Adult, Bolivia, from the same.

6. **Petrochelidon leucorrhoa**, (Vieill.)
Hirundo leucorrhoa, *Vieill. Nouv. Dict.* xiv. p. 519.
Hirundo frontalis, *Gould. Voy. Beagle, Birds*, p. 40.
Hirundo Gouldii, *Cassin. Proceed. Acad. Phil.*, v. p. 69.
"Hirundo leucopyga, Licht. Mus. Berol." *Cabanis. Cat. Heine's Coll.* p. 48.
1, 2. Adults, South America, from the Rivoli Collection.

7. **Petrochelidon Meyeni**, *Cabanis. Cat. Heine's Coll.* p. 48. *Nova Acta Leop.* xvi. *Sup.* pl. 10, fig. 2.
" Hirundo leucopyga, Licht." *Meyen, Nova Acta*, ut sup.
1. Adult, Chili, from Dr. Townsend's collection.
2. Young, South America, from the Rivoli collection.

8. **Petrochelidon tahitica**, (Gm.) *Lath. Gen. Hist.* pl. 112.
Hirundo tahitica, *Gm. Syst. Nat.* i. p. 1016.
Hirundo pyrrholaima, *Forst. Desc. An.* p. 241, (1844.)
Hirundo taitensis, *Lesson. Voy. Coquille*, i. p. 648.
1. Adult, Tahiti, from Dr. Townsend's collection.
2. Adult, Sandwich Islands, from the Rivoli collection.

9. **Petrochelidon nigricans**, (Vieill.) *Gould, B. of Aust.* ii. pl. 14.
Hirundo nigricans, *Vieill. Nouv. Dict.* xiv. p. 523.
"Hirundo pyrrhonota, Lath. MSS." *Vig. and Horsf. Linn. Trans. London*, xv. p. 190.
Collocalia arborea. *Gould. Birds of Aust.* ii. p. *Introd.* p. 29.
"Hirundo pygialis, Temm." *Bonap. Cons. Av.* p. 341.
1, 2. Adult males, Australia, from Mr. Gould's collection.
3. Adult female, Australia, from the same.
4. Adult male, Van Diemen's Land, from the same.
5. Adult, Australia, from the Rivoli collection.

5. **Cecropis japonica**, Bonap. *Consp. Av.* p. 340.
Hirundo alpestris japonica, *Temm. and Schl. Faun. Japon. Aves*, p. 33, pl. 11.
1. Adult male, China.

6. **Cecropis daurica**, (Linn.)
" Hirundo daurica, Linn. Mantiss. p. 528." *Gm. Syst. Nat.* i. p. 1024.
Hirundo erythropygia, *Sykes. Proc. Zool. Soc. London*, 1832, p. 83.
Hirundo nipalensis, *Hodg. Journ. As. Soc. Beng.* v. p. 780, (1836.)
1, 2. Adults, India, from Capt. Boys' collection.

7. **Cecropis rufula**, (Temm.) *Werner's Atlas, Ois. d'Eur.* pl. 27.
1. Adult, Ural mountains.

8. **Cecropis badia**, Cassin. *Proc. Acad. Philada.* June 1853.
1, 2. Adults, Malacca.

3. Genus PETROCHELIDON, Cabanis. Cat. Heine's coll. p. 47.

1. **Petrochelidon lunifrons**, (Say.) *Aud. B. of Am.* pl. 68.
Hirundo lunifrons, *Say. Long's Exp. to Rocky Mts. p.* 47. *Bonap. Am. Orn.* i. pl. 7, fig. 1.
" Hirundo fulva, Vieill." *Bonap. Am. Orn.* i. p. 63. *Aud. Orn. Biog.* v. p. 415.
" Hirundo melanogaster, Swainson ?" *Aud. Orn. Biog.* v. p. 416.
Hirundo respublicana, *Aud. Ann. N. Y. Lyceum*, i. p. 164, (1824.)
Hirundo opifex, *Clinton. Ann. N. Y. Lyceum*, i. p. 161.
1. Adult, Fort Union. Presented by Mr. Edward Harris.
2. Adult, Columbia river, from Dr. Townsend's collection.
3, 4. Adults, near Philadelphia, from Mr. Krider's collection.
5, 6. Adults, Mexico from the Rivoli collection.

2. **Petrochelidon fulva**, (Vieill.)
Hirundo fulva, *Vieill Ois. d'Am. Sept.* p 62, pl. 32.
Hirundo pæciloma, *Gosse. B. of Jamaica*, p. 64.
1. Adult, Jamaica. Presented by C. W. Pennock, M. D.

3. **Petrochelidon bicolor**, (Vieill.) *Aud. B. of Am.* pl. 98.
Hirundo bicolor, *Vieill. Ois. d Am. Sept.* p. 61, pl. 31.
Hirundo viridis, *Wilson. Am. Orn.* v. p. 44, pl. 38, fig. 3.
Hirundo leucogaster, *Stephens. Gen. Zoo.* x. p. 106.
1. Adult male, Pennsylvania, from Mr. Krider's collection.
2. Adult male, Pennsylvania. Presented by Mr. Penrose.
3. Adult female, North America, from the Rivoli collection.
4. Adult, California, from Mr. Bell's collection.
5. Adult, Bolivia.

4. **Petrochelidon thalassina**, (Sw.) *Aud. B. of Am.* pl. 385, fig. 4, 5.
Hirundo thalassina, *Swains. Philos. Mag.* 1827, p. 366.
" Hirundo viridis ? Licht." *Bonap. Consp. Av.* p. 341.
"Hirundo sericea." *Label on specimens from Messrs. Verreaux, of Paris.*

1. Adult male, Oregon, from Dr. Townsend's collection.
2. Adult female, Oregon, from the same.
3. Adult male, California, from Dr. Gambel's collection.
4. Adult, Mexico, from the Rivoli collection.
5, 6. Adults, Mexico.

5. **Petrochelidon albiventer**, (Bodd.) *Buff. Pl. Enl.* 546, fig. 2.
Hirundo albiventer, *Bodd. Tab. Pl. Enl.* p. 32.
Hirundo leucoptera, *Gm. Syst. Nat.* i. p. 1022.

1. Adult, Surinam. Presented by C. Hering, M. D.
2. Adult, Cayenne, from the Rivoli collection.
3. Adult, Brazil, from the same.
4. Adult, Bolivia, from the same.

6. **Petrochelidon leucorrhoa**, (Vieill.)
Hirundo leucorrhoa, *Vieill. Nouv. Dict.* xiv. p. 519.
Hirundo frontalis, *Gould. Voy. Beagle, Birds*, p. 40.
Hirundo Gouldii, *Cassin. Proceed. Acad. Phil.*, v. p. 69.
"Hirundo leucopyga, Licht. Mus. Berol." *Cabanis. Cat. Heine's Coll.* p. 48.

1, 2. Adults, South America, from the Rivoli Collection.

7. **Petrochelidon Meyeni**, *Cabanis. Cat. Heine's Coll.* p. 48. *Nova Acta Leop.* xvi. *Sup.* pl. 10, fig. 2.
" Hirundo leucopyga, Licht." *Meyen, Nova Acta,* ut sup.

1. Adult, Chili, from Dr. Townsend's collection.
2. Young, South America, from the Rivoli collection.

8. **Petrochelidon tahitica**, (Gm.) *Lath. Gen. Hist.* pl. 112.
Hirundo tahitica, *Gm. Syst. Nat.* i. p. 1016.
Hirundo pyrrholaima, *Forst. Desc. Av.* p. 241, (1844.)
Hirundo taitensis, *Lesson. Voy. Coquille*, i. p. 648.

1. Adult, Tahiti, from Dr. Townsend's collection.
2. Adult, Sandwich Islands, from the Rivoli collection.

9. **Petrochelidon nigricans**, (Vieill.) *Gould, B. of Aust.* ii. pl. 14.
Hirundo nigricans, *Vieill. Nouv. Dict.* xiv. p. 523.
" Hirundo pyrrhonota, Lath. MSS." *Vig. and Horsf. Linn. Trans. London*, xv. p. 190.
Collocalia arborea. *Gould. Birds of Aust.* ii. p. *Introd.* p. 29.
" Hirundo pygialis, Temm." *Bonap. Cons. Av.* p. 341.

1, 2. Adult males, Australia, from Mr. Gould's collection.
3. Adult female, Australia, from the same.
4. Adult male, Van Diemen's Land, from the same.
5. Adult, Australia, from the Rivoli collection.

Family HIRUNDINIDÆ.

I. *Subfamily HIRUNDININÆ.*

1. Genus HIRUNDO, Linn. *Syst. Nat.* i. p. 343, (1766.)

1. **HIRUNDO RUSTICA**, Linn. *Syst. Nat.* i. p. 343, (1766.) *Gould, B. of Eur.* ii. pl. 54.

Hirundo domestica, *Auct. Antiq. et Pallas Zoog.* i. p. 528.

Cecropis rustica et pagorum, *Brehm. Vög. Deut.* i. p 137, 138.

" Hirundo albifrons, Rupp. Mus. Francof." *Bonap. Consp. Av.* p. 338.

1, 2, 3, 4. Adult males, England. Presented by Edward Wilson, Esq.

5. Female, England. Presented by the same.

6. Adult male, Switzerland. Presented by A. L. Heermann, M. D.

7. Adult, France, from the Rivoli collection.

8, 9. Albinoes, France, from the same.

10. Nearly adult, India, from Capt. Boys' collection.

11. Adult, Japan. Presented by Lieut. Edward Brinley, Jr., U. S. Navy.

2. **HIRUNDO DOMICOLA**, Jerdon. *Madras Journal?*

Hirundo dimidiata, *Sundeval. Ofversigt Kongl. Akad.*, April, 1850?

Hirundo rusticoides. *Catalogue of Rivoli collection*, p. 18.

" Hirundo rusticoides, Cuv." *Label on specimens in Rivoli collection.*

" Hirundo rusticoides, Kuhl." *Boie in Isis*, 1844, p. 174?

1. Nearly adult, Java, from the Rivoli collection.

2. Younger, Java, from the same.

3. This species? Abyssinia, from the Rivoli collection.

3. **HIRUNDO GUTTURALIS**, Scopoli. *Flor. et Faun. Insub.* pt. ii. p. 96, (1786,) *Pl. Col.* 83, fig. 2.

Hirundo panayana, *Gm. Syst. Nat.* i. p. 1018, (1788.)

Hirundo javanica, *Sparrman. Mus. Carls.* pl. 100. (1789.)

Hirundo jewan, *Sykes. Proc. Zool. Soc., London*, 1832, pt. ii. p. 83.

" Hirundo rustica, Linn." *Meyen Nova Acta.* xvi. *Suppl.* p. 72. pl. 10, fig. 1.

" Hirundo rusticoides, Kuhl." *Bonap. Cons. Av.* p. 338.

1. Adult male, Java, from the Rivoli collection.

2. Adult, Java, from the same.

8. **Cypselus ambrosiacus**, (Gm.) *Temm. Pl. Col.* 460, fig. 2.
Hirundo ambrosiaca, *Gm. Syst. Nat.* i. p. 1021.
"Hirundo americana, Lath. nec Wils. fide Temm." *Streubel, Isis,* 1848, p. 356.
1, 2. Adults, Fazogloa, Eastern Africa, from the Rivoli collection.

9. **Cypselus balassiensis**, Gray. *Griff. Cuv.* vii. p. 60, (1829.)
Cypselus palmarum, *Gray. Ill. Ind. Zool.* pl. 35 fig. 1, (1832.)
1. Adult, India, from Capt. Boys' collection.

10. **Cypselus parvus**, Licht. *Verz.* p. 58?
1. Adult, Western Africa, from Mr. Cassin's collection.
2. Adult, Congo river. Presented by A. A. Henderson, M. D., U. S. Navy.
3. Younger? Madagascar, from the Rivoli collection.

11. **Cypselus australis**, Gould. *B. of Aust.* ii. pl. 11.
Cypselus vittatus, *Jard. and Selby. Ill. Orn. n. s.* pl. 39?
Hirundo pacifica, *Lath. Ind. Orn. Supp.* p. 58?
1. Adult male, Australia, from Mr. Gould's collection.
2. Adult female, Australia, from the same.

12. **Cypselus cayennensis**, (Gm.) *Buff. Pl. Enl.* 725, fig. 2.
Hirundo cayennensis, *Gm. Syst. Nat.* i. p. 1024.
1. Adult, Brazil, from the Rivoli collection.
2. Adult, Brazil.

13. **Cypselus squamatus**, Cassin. *Proc. Acad. Philada.* June, 1853.
1. Adult, Guiana. Presented by H. G. Dalton, M. D.
2. Adult, Cayenne.
3. Younger, South America.

2. Genus ACANTHYLIS, Boie. *Isis*, 1826, p. 971.

1. **Acanthylis pelasgia**, (Linn.) *Wilson, Am. Orn.* pl. 39, fig. 1.
Hirundo pelasgia, *Linn. Syst. Nat.* i. p. 345.
Hirundo cerdo, *Bartram. Trav.* p. 292, (1791.)
"Cypselus acutus, Temm. Mus. Lugd." *Bonap. Cons. Av.* p. 64, (Pl. col. vi. p. 78.)
1. Adult male, Philadelphia. Presented by J. K. Townsend, M. D.
2. Adult female, Carlisle, Penna. Presented by Prof. S. F. Baird.
3. Adult, North America, from the Rivoli collection.

2. **Acanthylis Vauxii**, (Townsend.)
Cypselus Vauxii, *Townsend. Journ. Acad. Nat. Sci. Philada.* viii. p. 148, (1839.)
1. Adult, Oregon, from Dr. Townsend's collection.

9. **Hirundo nigrita**, G. R. Gray. *Gen. of Birds*, pl. 20.
   1. Adult, Ashantee country, from M. Verreaux's collection.
   2. Adult, Western Africa, from Mr. Cassin's collection.

10. **Hirundo ruficeps**, Licht. *Verz.* p. 58, (1823.) *Lath. Gen. Hist.* vii. pl. 113.
Hirundo filifera, *Steph. Gen. Zool.* xiii. pl. ii. p. 78, (1826.)
Hirundo filicaudata, *Franklin. Proc. Zool. Soc. London*, 1831, p. 115.
Hirundo indica, *Gm. Syst. Nat.* i. p. 1025. *Lath. Gen. Hist.* vii. pl. 111 ?
   1. Adult male, India, from Capt. Boys' collection.
   2. Adult female, India, from the same
   3. Adult male, India.
   4. Adult female, India.
   5. Adult, Madras, from the Rivoli collection.
   6, 7. Nearly adult, Abyssinia, from the same.
   8, 9. Young? Abyssinia, from the same.

2. Genus CECROPIS, Boie. Isis, 1826, p. 971.

1. **Cecropis senegalensis**, (Linn.) *Swains. B. of W. Af.* ii. pl. 6.
Hirundo senegalensis, *Linn. Syst. Nat.* i. p. 345.
"Hirundo rufula, Temm." *Gould. B. of Eur.* ii. pl. 55.
"Hirundo russata ?" *Label on specimen from Europe.*
   1, 2. Adults, Senegal, from the Rivoli collection.
   3. Adult, Abyssinia.

2. **Cecropis cucullata**, (Bodd.) *Le Vaill. Ois. d'Af.* pl. 245, fig. 1
Hirundo cucullata, *Bodd. Tab. Pl. Enl.* p. 45. *Buff. Pl. Enl.* 723, fig. 2.
Hirundo capensis, *Gm. Syst. Nat* i. p 1019.
   1. Adult male, Cape of Good Hope, from the Rivoli collection.
   2. Younger, Cape of Good Hope, from the same.
   3. Very young, Cape of Good Hope, from the same.

3. **Cecropis abyssinica**, (Guerin.) *Ferr. and Gall. Voy. Abys. Ois.* pl. 10.
Hirundo abyssinica, *Guerin. Rev. Zool.* 1843, p. 322.
Cecropis striolata, *Rüpp. Syst. Uebers.* p. 18, pl. 6.
"Hirundo puella." *Label on specimens received from M. Verreaux, Paris.*
   1. Adult male, Port Natal.
   2. Adult female, Ashantee country, from M. Verreaux's collection.

4. **Cecropis striolata**, Temm. *Schlegl. Rev. Crit.* p. 42. *Faun. Japon. Aves*, p. 33.
   1, 2. Adults, Java, from the Rivoli collection.

III. *Subfamily* PROGNINÆ.

1. Genus PROGNE, Boie. Isis, 1826, p. 971.

1. **Progne purpurea**, (Linn.) *Aud. B. of Am.* pl. 22.
Hirundo purpurea et subis, *Linn.* *Syst. Nat.* i. p. 344.
Hirundo violacea, *Gm.* *Syst. Nat.* i. p. 1026.
Hirundo cærulea, *Vieill.* *Ois. d'Am. Sept.* i. p. 57, pl. 26, 27.
Hirundo versicolor, *Vieill.* *Nouv. Dict.* xiv. p. 509.
Hirundo ludoviciana, *Cuv.* *Reg. An.* i. p. 374, (1817.)
1. Adult male, Philadelphia. Presented by Thos. McEuen, M. D.
2. Adult female, Washington. Presented by J. K. Townsend, M. D.
3. Young male, Washington. Presented by the same.
4. Adult male, North America, from the Rivoli collection.
5. Adult male, South America, from the same.
6. Young male, South America, from the same.

2. **Progne dominicensis**, (Gm.) *Vieill. Ois. d'Am. Sept.* pl. 28, 29.
Hirundo dominicensis, *Gm.* *Syst. Nat.* i. p. 1025.
Hirundo albiventris, *Vieill.* *Nouv. Dict.* xiv. p. 533.
Hirundo domestica, *Vieill.* *Nouv. Dict.* xiv. p. 520.
1. Adult, St. Domingo, from the Rivoli collection.
2. Adult, Brazil, from the same.
3. Adult, Cayenne, from the same.
4. Younger, Cayenne, from the same.
5, 6, 7, South America, from the same.
8. Nearly adult, Surinam. Presented by C. Hering, M. D.

3. **Progne chalybea**, (Gm.) *Buff. Pl. Enl.* 545, fig. 2.
Hirundo chalybea, *Gm.* *Syst. Nat.* i. p. 1026.
1. Adult male, Panama, from Mr. Bell's collection.
2, 3. Adult females, Panama, from the same.

4. **Progne fusca**, (Vieill.)
Hirundo fusca, *Vieill.* *Nouv. Dict.* xiv. p. 510.
1. Adult? Brazil.
2, 3, 4. Adults? South America, from the Rivoli collection.

5. **Progne tapera**, (Linn.)
Hirundo tapera, *Linn.* *Syst. Nat.* i. p. 345.
Hirundo pascuum, *De Wied.* *Beitr.* iii. p. 360.
1. Adult? Bolivia.
2, 3. Adults? South America, from the Rivoli collection.

6. **Progne borbonica**, (Gm.) *Buff. Pl. Enl.* 544, fig. 2.
Hirundo borbonica, *Gm.* *Syst. Nat.* i. p. 1017.
1. Adult male, Madagascar, from the Rivoli collection.
2. Female? Madagascar, from the same.

IV. *Subfamily* COTYLINÆ.

1. Genus COTYLE, Boie. Isis, 1822, p. 350.

1. COTYLE RIPARIA, (Linn.) *Gould, B. of Eur.* ii. pl. 58. *Aud. B. of Am.* pl. 385.
Hirundo riparia, *Linn. Syst. Nat.* i. p. 344.
" Hirundo cinerea, Lath." *Vieill. Nouv. Dict.* xiv. p. 526.
Cotyle fluviatilis et microrhynchos, *Brehm. Vög. Deuts.* i. p. 142, 143.
Cotyle minor, *Cabanis. Cat. Heine's Coll.* p. 49 ?
1, 2. Adults, Europe, from the Rivoli collection.
3. Adults, France. Presented by A. L. Heermann, M. D.
4. Adults, New Jersey, from Mr. Krider's collection.
5. Adults, New Jersey, from the same.
6. Adults, Pennsylvania.
7. C. minor, Cab.? Abyssinia, from the Rivoli collection.

2. COTYLE SERRIPENNIS, (Aud.) *B. of Amer.* pl. 385.
Hirundo serripennis, *Audubon. Orn. Biog.* iv. p. 593.
1. Adult male, Pennsylvania. Presented by J. K. Townsend, M. D.
2. Adult male, Carlisle, Penna. Presented by Prof. S. F. Baird.
3. Adult female, Carlisle, Penna. Presented by the same.

3. COTYLE PALUSTRIS, (Steph.) *Le Vaill. Ois. d'Af.* pl. 246, f. 2.
Hirundo palustris, *Stephens. Gen. Zool.* x. p. 101, (1817.)
Hirundo paludicola, *Vieill. Nouv. Dict.* xiv. p. 511, (1817.)
" Cotyle bita, Mus. Par." *Boie. Isis,* 1844, p. 170 ?
Cotyle paludibula, *Rupp. Syst. Uebers.* p. 22.
1, 2, 3. Adults, Cape of Good Hope, from the Rivoli collection.
4. Younger, Cape of Good Hope, from the same.
5. Adult, Africa, from the same.

4. COTYLE FLAVIGASTRA, (Vieill.) *Pl. col.* 161, fig. 2.
Hirundo flavigastra, *Vieill. Nouv. Dict.* xiv. p. 534, (1817.)
Hirundo hortensis, *Licht. Verz.* p. 57, (1823.)
Hirundo jugularis, *De Wied. Beitr.* iii. p. 365.
1. Adult, Surinam. Presented by C. Hering, M. D.
2, 3, 4. Adults, Brazil, from the Rivoli collection.

5. COTYLE RUFICOLLIS, (Vieill.)
Hirundo ruficollis, *Vieill. Nouv. Dict.* xiv. p. 523.
1. Adult ? South America.

6. COTYLE FUCATA, (Temm.) *Pl. col.* 161, fig. 1.
Hirundo fucata, *Temm. Pl. col.* iv. (liv. 27.)
Hirundo phenicephala, *Rafinesque. Annals of Nature,* 1820, p. 4?
1, 2. Adults, South America, from the Rivoli collection.

7. COTYLE RUPESTRIS, (Scop.) *Gould, B. of Eur.* ii. pl. 56.
Hirundo rupestris, *Scopoli. Ann.* i. p. 167.
Hirundo montana, *Gm. Syst. Nat.* i. p. 1020.
Hirundo rupicola, *Hodgs. Jour. As. Soc. Bengal*, 1836, p. 781.
Hirundo inornata, *Jerdon. Madras Jour.* 1841, p. 201.
1, 2. Adults, France, from the Rivoli collection.
3. Adult, India, from Capt. Boys' collection.

8. COTYLE FULIGULA, (Licht.) *Le Vaill. Ois. d'Af.* pl. 246, fig. 1.
Hirundo fuligula, *Licht. Forst. Desc. An.* p. 55.
"Hirundo rupestris." *Temm. Man.* p. 431.
"Hirundo fulva, Mus. Lugd." *Bonap. Cons. Av.* p. 342.
"Hirundo torquata, Gm." *Boie. Isis*, 1828, p. 316.
Hirundo rufogularis, *Catalogue of the Rivoli collection*, p. 18.
1. Adult, Cape of Good Hope, from the Rivoli collection.
2. This species? Angola. Presented by A. A. Henderson, M. D., U. S. Navy.

9. COTYLE CINCTA, (Bodd.) *Buff. Pl. Enl.* 723, fig. 1.
Hirundo cincta, *Bodd. Tabl. des Pl. Enl. d'Aub.* p. 45.
Hirundo torquata, *Gm. Syst. Nat.* i. p. 1022.
1. Adult, Cape of Good Hope, from the Rivoli collection.

10. COTYLE CONCOLOR, (Sykes.)
Hirundo concolor, *Sykes. Proc. Zool. Soc. London*, 1832, p. 83.
1. Adult, India, from Capt. Boys' collection.

11. COTYLE SINENSIS, (Gray.)
Hirundo sinensis, *Gray. Ill. Ind. Zool.* pl. 35, fig. 3, (*not Gm.*)
Hirundo brevicaudata, *McClell. and Horsf. Proc. Zool. Soc. London*, 1839, p. 156.
Hirundo subsoccata et minuta, *Hodgs. Gray, Zool. Mis.* p. 82, *fide Gray, Cat. Brit. Mus. Fissirostres*, p. 30.
Adult, India, from the Rivoli collection.

2. Genus COLLOCALIA, G. R. Gray. List Gen. of Birds, p. 8, (1840.)

1. COLLOCALIA ESCULENTA, (Linn.)
Hirundo esculenta, *Linn. Syst. Nat.* i. p. 343.
Hemiprocne salangana, *Streubel. Isis*, 1848, p. 368 ?
1, 2. Adults, Timor, from the Rivoli collection.
3. Adults, Philippines? from the same.
4. Adult, Timor.

2. COLLOCALIA FUCIPHAGA, (Thunb.) *Lath. Gen. Syn. Supp.* ii. pl. 135.
Hirundo fuciphaga, *Thunburg. Acta Holm.* xxxiii. p. 151.
"Hirundo esculenta, Linn." *Lath. Ind. Orn.* ii. p. 580.
"Hirundo nidifica, Lath." *Bonap. Cons. Av.* p. 343.
Hemiprocne fucivora, *Streubel. Isis*, 1848, p. 369.
1. Adult, Java, from the Rivoli collection.
2. Adult, Sumatra, from the same.
3, 4. Adults, from the Rivoli collection.

Collocalia francica, (Gm.)
Hirundo francica, *Gm. Syst. Nat.* i. p. 1017.
Macropteryx spodiopygius, *Peale. Voy Vincennes, Birds*, p. 176.
1, 2. Adults, from the Rivoli collection.

Collocalia cinerea, (Gm.)
Hirundo cinerea, *Gm. Syst. Nat.* i. p. 1026.
Macropteryx leucophæus, *Peale. Voy. Vincennes, Birds*, p. 178.
1. Adult, Tahiti, from Dr. Townsend's collection.
2. Adult. Marquesas Islands, from Dr. Gambel's collection.

V. *Subfamily MACROPTERINÆ.*

1. Genus MACROPTERYX, Swainson. Zool. Ill. ii. p. (1832.)

1. **Macropteryx mystaceus**, (Lesson.) *Voyage de la Coquille, Ois.* pl. 22.
Cypselus mystaceus, *Lesson. Voy. Coq.* i. p. 647.
1. Adult male, New Guinea.
2. Adult female, New Guinea.
3. Young, Celebes?

2. **Macropteryx comatus**, (Temm.) *Pl. col.* 268.
Cypselus comatus, *Temm. Pl. col.* iv. (liv. 45.)
1. Adult, Sumatra, from the Rivoli collection.
2. Adult, Timor, from the same.
3. Adult male, Celebes.

3. **Macropteryx klecho**, (Horsf.) *Temm. Pl. col.* 83, fig. 1.
Hirundo Klecho, *Horsf. Linn. Trans. London*, xiii. p. 143, (1820.)
Cypselus longipennis, *Temm. Pl. col.* iv. (liv. 14.)
1. Male, Java, from the Rivoli collection.
2. Female, Java, from the same.
3. Male, Java.
4. Young, Sumatra.

4. **Macropteryx coronatus**, (Tickell.)
Hirundo coronata, *Tick. Jour. As. Soc. Bengal*, ii. p. 580, (1833.)
Dendrochelidon velatus, *Less. Echo du monde Savant*, 1844, p. 1190.
1. Adult male, India, from Capt. Boys' collection.

CATALOGUE

OF THE

HALCYONIDÆ

IN THE COLLECTION OF

THE ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

BY

JOHN CASSIN.

November 1, 1852.

Family HALCYONIDÆ.

I. *Subfamily* ALCEDININÆ.

1. Genus ALCEDO, Linneus.

1. **Alcedo ispida**, Linn. *Syst. Nat.* i. p. 179. *Selby, Ill. Brit. Orn.* pl. 40 fig. 1.
Gracula Atthis, Linn. *Syst. Nat.* i. p. 165. ?
Alcedo subispida et advena, *Brehm. Vog. Deuts.* i. p. 149, 150.

1. Adult male, Sweden.
2. Adult female, Sweden.
3. Adult male, France. Presented by Wm. S. Warder, Esq.
4. Adult male, France. Presented by A. L. Heermann, M. D.
5, 6. Adults, Europe, from the Rivoli collection.
7. Very young, Europe, from the same.

2. **Alcedo bengalensis**, Gm. *Syst. Nat.* i. p. 450. *Temm. and Schleg. Faun. Japon. Aves.* pl. 38.
"Alcedo hispidioides, Less." *Gray, Cat. Fiss. Brit. Mus.* p. 63.
Alcedo hispidula, *Catalogue of Rivoli collection* p. 28.

1. Adult male, India. Presented by Mr. Thomas Ryan.
2. Adult female, Bengal.
3. Adult male, Java.
4. Adult male, Java, from the Rivoli collection.
5, 6. Adults, Japan, from the same.
7, 8. Younger, from the same.
9. A. bengalensis ? male, Celebes.
10, 11. Adults, India, from Capt. Boys' collection.

3. **Alcedo euryzona**, Temm. *Pl. col.* iv. p. (*Liv.* 86. *No plate of this species.*)
Alcedo nigricans, *Blyth. Jour. As. Soc. Bengal*, 1847, p. 1180.

1. Adult male, Molucca.
2. Adult male, Borneo.

4. **Alcedo meninting**, Horsf. *Trans. Linn. Soc. Lond.* xiii. p. 172. *Temm. Pl. col.* 239, fig. 2.
Alcedo asiatica, *Sw. Zool. Ill.* i. pl. 50.
"Alcedo Bengalensis, Gm." *Lesson Traité* i. p. 243.

1. Adult, Java, from the Rivoli collection.
2, 3. Younger, Java, from the same.
4. Young, Java, from the same.

5. ALCEDO BERYLLINA, Vieill. *Nouv. Dict.* xix. p. 414, (1818.) *Dict. des Sci. Nat. Ornith.* pl. 63, fig. 2. (*Paris*, 1823.)
Alcedo biru, *Horsf. Trans. Linn. Soc. Lond.* xiii. p. 172, (1822.) *Temm. Pl. col.* 239, fig. 1.

1. Adult, Java, from the Rivoli collection.
2. Adult, Java.

6. ALCEDO SEMITORQUATA, Swains. *Zool. Ill.* iii. pl. 151.

1, 2. Adults, Cape of Good Hope, from the Rivoli collection.
3. Younger, Cape of Good Hope, from the same.
4. Adult male, Cape of Good Hope. Presented by Mr. J. P. Verreaux.

7. ALCEDO QUADRIBRACHYS, Bonap. *Consp. Av.* p. 158. *Jard. Cont. Orn.* 1851, pl.
" Alcedo quadribrachys, Temm. Mus. Lugd." *Bonap. ut. sup.*

1. Adult, Guinea, from the Rivoli collection.
2. Adult, Western Africa, from Mr. Cassin's collection.
3. Younger, Western Africa, from the same.
4. Nearly adult, Gaboon, Western Africa, from Mr. Verreaux collection.

2. Genus CERYLE, Boie.

1. CERYLE MAXIMA, (Pall.) *Buff. Pl. Enl.* 679.
Alcedo maxima, *Pallas. Spic. Zool. Fasc.* vi. p. 14, (1769.)
Alcedo guttata, *Boddaert. Tab. Pl. Enl.* p. 42, (1783.)
Alcedo afra, *Shaw, Gm. Zool.* viii. p. 55.
Ispida gigantea, *Swains. B. of W. Af.* ii. p. 93, pl. xi. ?

1, 2, 3. Males, Cape of Good Hope, from the Rivoli collection.
4. Females, Cape of Good Hope.
5. Female, Africa, from the Rivoli collection.
6. Female, South Africa. Presented by Mr. John W. Rulon.

2. CERYLE TORQUATA, (Linn.) *Buff. Pl. Enl.* 284.
Alcedo torquata, *Linn. Syst. Nat.* i. p. 180.
Alcedo cinerea, *Bonnaterre, Ency. Meth. Orn.* p. 286, (ed. 1790.)
Alcedo cyanea, *Vieill. Nouv. Dict.* xix. p. 401.
Alcedo stellata, *Meyen. Nov. Act. Acad. Caes.* xvi. *Supp.* pl. 14.

1, 2, 3. Adults, South America, from the Rivoli collection.
4, 5. Younger, South America, from the same.
6. Young male, Cayenne.
7. Adult, Cayenne. Presented by C. Hering, M. D.

3. CERYLE ALCYON, (Linn.) *Wilson, Am. Orn.* iii. pl. 23, fig. 1.
Alcedo alcyon, *Linn. Syst. Nat.* i. p. 180.
Alcedo jaguacati, *Dumont. Dict. Sci. Nat.* i. p. 455, (Paris, 1816.)
Alcedo guacu, *Vieill. Nouv. Dict.* xix. p. 406 ?

Ispida ludoviciana, *Gm. Syst. Nat.* i. p. 452. *Buff. Pl. Enl.* 715.

1, 2. Adult males, North America, from the Rivoli collection.
3, 4. Female, North America, from the same.
5. Adult female, near Philadelphia. Presented by George C. Leib, M. D.

4. CERYLE AMAZONA, (Lath.) *Dubois, Orn. Gal.* pl. 85.
Alcedo amazona, *Lath. Ind. Orn.* i. p. 257.
Alcedo rubescens, *Vieill. Nouv. Dict.* xix. p. 408.
Alcedo vestita, *Dumont. Dict. des Sci. Nat.* xxix. p. 272.

1. Adult, National Bridge, Mexico, from Mr. Pease's collection.
2. Adult, Surinam. Presented by C. Hering, M. D.
3, 4, 5, 6. Adults, Brazil, from the Rivoli collection.
7. Adult, Rio La Plata, from the same.

5. CERYLE INDA, (Linn.) *Edward's Gleanings*, vii. pl. 335.
Alcedo inda, *Linn. Syst. Nat.* i. p. 179.
Alcedo bicolor, *Gm. Syst. Nat.* i. p. 451. *Buff. Pl. Enl.* 592.
Alcedo surinamensis, *Gm. Syst. Nat.* i. p. 448 ?
Alcedo viridirufa, *Bodd. Tab. Pl. Enl.* p. 36.
“Alcedo indica, Lath.” *Drapiez, Dict. Class.* x. p. 231, (*Paris*, 1826.)

1. Adult, South America.
2. Younger, South America.
3. Adult, Cayenne, from the Rivoli collection.
4, 5. Younger, South America, from the same.
6. Young, Cayenne, from the same.

6. CERYLE AMERICANA, (Gm.) *Buff. Pl. Enl.* 591.
Alcedo americana, *Gm. Syst. Nat.* i. p. 451.
Alcedo viridis, *Vieill. Nouv. Dict.* xix. p. 413.

1. Adult, Brazil, from Mr. Cassin's collection.
2, 3. Adults, Surinam. Presented by C. Hering, M. D.
4. Adult, South America, from the Rivoli collection.

7. CERYLE CABANISII, (Tschudi.)
Alcedo Cabanisii, *Tschudi. Fauna Peru. Vertb.* p. 253.

1, 2. Adults, Mexico, from Mr. Pease's collection.
3, 4, 5, 6, 7. Adults, South America, from the Rivoli collection.
8. Younger, South America, from Mr. Cassin's collection.

8. CERYLE SUPERCILIOSA, (Linn.) *Edward's Glean.* v. pl. 245.
Alcedo superciliosa, *Linn. Syst. Nat.* i. p. 179. *Buff. Pl. Enl.* 756, fig. 2, 3.

1. Adult, Surinam. Presented by C. Hering, M. D.
2, 3. Adults, Cayenne, from the Rivoli collection.
4, 5, 6. Younger, South America, from the same.

4. CORYTHORNIS VINTSIOIDES, Eyd. and Gerv. *Guerin's Mag.* 1836, p. 30, pl. 74.
Alcedo vintsioides, *Eyd. and Gerv. ut sup.*
" Alcedo cristata, Linn." *Shaw. Gen. Zool.* viii. p. 98.

1, 2. Adults, Madagascar, from the Rivoli collection.

4. Genus ALCYONE, Swainson.

1. ALCYONE AZUREA, (Lath.) *Gould, B. of Aust.* ii. pl. 25.
Alcedo azurea, *Lath. Index, Orn.* ii. *Supp.* p. xxxii.
Alcedo tribrachys, *Shaw. Nat. Misc.* xvi. pl. 681.
Ceyx cyanea, *Less. Traité d'Orn.* i. p. 241.
" Alcedo tridactyla, Shaw." *Lesson, ut sup.*
Alcyone diemenensis, *Gould. Proc. Zool. Soc. London*, 1846, p. 19?

1. Adult male, Australia, from Mr. Gould's collection.
2. Adult female, Australia, from the same.
3. Adult, Australia, from the Rivoli collection.
4, 5. A. diemenensis, *Gould.* Van Diemen's Land, from Mr. Gould's collection.

2. ALCYONE PULCHRA, Gould. *Proc. Zool. Soc. London*, 1846, p. 19.

1. Male, Northern Australia, from Mr. Gould's collection.
2. Female, Port Essington, from the same.

3. ALCYONE LESSONII, Cassin. *Proc. Acad. Philada.* v. p. 69.

1. New Guinea.

4. ALCYONE PUSILLA, (Temm.) *Gould, B. of Aust.* ii. pl. 26.
Ceyx pusilla, *Temm. Pl. col.* iv. p. (liv. 100,) pl. 595, fig. 3.

1. Adult, Port Essington, from Mr. Gould's collection.

II. *Subfamily HALCYONINÆ.*

Genus HALCYON, Swainson.

1. HALCYON PILEATA, (Bodd.) *Buff. Pl. Enl.* 673.
Alcedo pileata, *Boddaert. Tab. Pl. Enl.* p. 41.
Alcedo atricapilla, *Gm. Syst. Nat.* i. p. 453.
Alcedo luzonica, *Gm. Syst. Nat.* i. p. 453? *Sonn. Buff. Ois.* xx. p. 202.
Alcedo albiventris, *Scop. Flo. et Faun. Insub.* p. 90. *Sonnerat Voy.* iii. pl. 31?
Alcedo brama, *Less. Cent. Zool.* pl. 8.

1. Adult male, Malacca.
2. Adult female, Malacca.
3, 4. Males, India, from the Rivoli collection.
5. Female, India, from the same.
6. Adult, India. Presented by Mr. Wm. S. Vaux.

2. **Halcyon cyanoventris**, (Vieill.) *Temm. Pl. col.* 135.
Alcedo cyanoventris, *Vieill. Nouv. Dict.* xix. p. 412.
Alcedo melanoptera, *Horsf. Trans. Linn. Soc. London*, xiii. p. 174.
"Alcedo omnicolor, Reinw." *Temm. Pl. col.* iv. p. (liv. 23.)

1. Adult male, Java.
2. Younger male, Java.
3. Male, Java, from the Rivoli collection.
4. Female, Java, from the same.

3. **Halcyon smyrnensis**, (Linn.) *Buff. Pl. Enl.* 894.
Alcedo smyrnensis, *Linn. Syst. Nat.* i. p. 181.

1. Adult, Burrampooter river, India. Presented by M. Burrough, M. D.
2. Adult, India. Presented by Mr. Thomas Ryan.
3, 4. Adults, India, from the Rivoli collection.
5. Younger, India, from the same.

4. **Halcyon fusca**, (Bodd.) *Kittl. Kupf. zur Nat. der Vög.* pl. 14, fig. 2. *Buff. Pl. Enl.* 232.
Alcedo fusca, *Boddaert. Tab. Pl. Enl.* p. 54.
"Alcedo rufirostris, Berliner Museum." *Kittlitz, ut sup.* p. 10.
Alcedo smyrnensis, var. albogularis, *Blyth. Jour. As. Soc. Beng.* xii. pt. ii. p. 998.
Halcyon ruficollis, *Swainson. Cab. Cy. Birds* ii. p. 335, (1837.)

1, 2. Adults, Philippines.
3. Adult, India, from the Rivoli collection.
4. Younger, Manilla, from the Rivoli collection.

5. **Halcyon badia**, Verreaux. *Rev. et Mag. de Zool.* 1851, p. 264.
1. Adult male, Gaboon, from Messrs. Verreaux' collection.

6. **Halcyon luzuli**, (Temm.) *Pl. col.* 508.
Alcedo luzuli, *Temm. Pl. col.* ii. p. (liv. 86.)

1. Adult, New Guinea.

7. **Halcyon diops**, (Temm.) *Pl. col.* 272.
Alcedo diops, *Temm. Pl. col.* ii. p. (liv. 86.)

1. Adult, Sumatra.

8. **Halcyon Macleayii**, Jard. and Selby. *Ill. Orn.* ii. pl. 101. *Gould, B. of Aust.* ii. pl. 24.
Halcyon incinctus, *Gould. Proc. Zool. Soc. London*, 1837, p. 142.
Alcedo diaphthalmo-rufo-ventro, *Homb. and Jacq. Ann. Sci. Nat.* xvi. p. 315, (Paris, 1841.) ?

1. Adult male, Moreton bay, Australia, from Mr. Gould's collection.

2. Adult male, Port Essington, from the same.
3. Adult female, Port Essington, from the same.
4. Young, Port Essington, from the same.
5. Adult female, Port Essington, from the Rivoli collection.

9. **HALCYON PULCHELLA**, (Horsf.) *Temm. Pl. col.* 277, 586.
Alcedo pulchella, *Horsfield. Trans. Linn. Soc. London*, xiii. p. 175.
Dacelo buccoides, *Temm. Pl. col.* ii. p. (liv, 99.)

1. Adult male, Malacca.
2, 3. Adults, Java, from the Rivoli collection.
4, 5. Females, Malacca, from the same.
6. Female, Sumatra, from the same.

10. **HALCYON MELANOPS**, Bonap. *Consp. Av.* p. 154.
"Dacelo melanops, Temm. Mus. Lugd." *Bonap. ut sup.*

1. Adult, Indian Archipelago.

11. **HALCYON COROMANDA**, (Lath.) *Sonnerat, Voy. Ind.* pl. 118.
Alcedo coromanda, *Lath. Ind. Orn.* i 252.
Halcyon lilacina, *Sw. Cab. Cy. Birds* . p. 335.
Halcyon coromanda minor, *Schlegel. Fau. Jap. Aves*, p. 76.
Alcedo coromandeliana, *Scop. Flor. et Faun. Insub.* ii. p. 89?
Alcyon calipyga, *Hodg. Gray, Zool. Misc.* p. 82?

1. Adult male, Borneo.
2. Very young, Borneo.

12. **HALCYON SCHLEGELI**, Bonap. *Cons. Av.* p. 156. *Temm. and Schl. Fau. Jap.* pl. 39.
Halcyon coromanda major, *Schlegel. Fau. Jap. Aves*, p. 76.

1, 2, 3. Adults, Java? from the Rivoli collection.

13. **HALCYON CONCRETA**, (Temm.) *Pl. col.* 346.
Dacelo concreta, *Temm. Pl. col.* ii. p. (liv. 58.)

1. Adult male, Sumatra.
2, 3. Adults, Sumatra, from the Rivoli collection.
4. Young, Sumatra, from the same.
5. Young female, Sumatra.

14. **HALCYON LINDSAYI**, (Vig.) *Gray, Gen.* pl. 27. *Voy. Bonite, Ois.* pl. 7.
Dacelo Lindsayi et Lessonii, *Vigors. Proc. Zool. Soc. London*, 1831, p. 97.

1. Male? Philippines, from the Rivoli collection.
2. Female? Philippines, from the same.

15. **HALCYON MONACHA**, Bonap. *Cons. Av.* p. 154.
"Dacelo monachus, cyanocephalus, et princeps, Forsten. Mus. Lugd." *Bonap. ut sup.*
Alcedo flavicans, Gm. *Syst. Nat.* i. p. 456?

1. Male, from the Rivoli collection.
2. Male, Celebes.
3, 4. Females? Celebes.

16. **HALCYON PRINCEPS**, Bonap. *Cons. Av.* p. 154.
"Dacelo monachus, cyanocephalus et princeps. Forsten. Mus. Lugd." *Bonap. ut sup.*

1. Male, Seram.
2. Female, Celebes.

17. **HALCYON SENEGALENSIS**, (Linn.) *Buff. Pl. Enl.* 594.
Alcedo senegalensis, *Linn.* *Syst. Nat.* i. p. 180.

1, 2, 3. Adults, Gambia, from Mr. Cassin's collection.
4. Adult, Africa, from the Rivoli collection.
5, 6. Young, Senegal, from the same.
7. Adult, Africa, from the same.

18. **HALCYON SENEGALOIDES**, A. Smith. *S. Af. Quar. Jour.* 1834, p. 143. *Ill. Zool. S. Africa, Aves*, pl. 63.

1. Adult, Port Natal, from the Rivoli collection.
2. Adult, Port Natal.

19. **HALCYON MALIMBICA**, (Shaw.) *Vieill. Gal. des Ois.* pl. 187.
Alcedo Malimbica, *Shaw.* *Gen. Zool.* viii. p. 66, (1811.)
Alcedo cinereifrons, *Vieill.* *Nouv. Dict.* xix. p. 403, (1818.)
Halcyon torquatus, *Swainson.* *B. of W. Af.* ii. p. 99.
Alcedo cancrophaga, *Lath.* *Ind. Orn.* i. p. 249. *Buff. Pl. Enl.* 334?
Alcedo cyanopectoralis, *Catalogue of Rivoli collection*, p. 23.

1. Adult, Rio de Bontry, Ashanteé.
2. Adult, Port Natal.
3, 4. Adults, Senegal, from the Rivoli collection.
5. Younger, Western Africa, from Mr. Cassin's collection.
6. H. cancrophaga, (*Lath.*) Senegal, from the Rivoli collection.

20. **HALCYON FUSCICAPILLA**, (Lafr.) *Guerin, Mag. de Zool.* 1833, *Ois.* pl. 18.
Dacelo fuscicapilla, *Lafresnaye, ut sup.*
Dacelo striata, *Drapiez.* *Dict. Class. d'Hist. Nat.* x. p. 223, (1826.)?
"Dacelo vaillanti, Temm. Mus. Lugd." *Bonap. Cons. Av.* p. 154.

1, 2, 3. Adults, Cape of Good Hope, from the Rivoli collection.
4. Male in moult, Cape of Good Hope. Presented by Mr. J. P. Verreaux.
5. Young female, Cape of Good Hope. Presented by the same.
6, 7. Very young males, Cape of Good Hope. Presented by the same.

21. HALCYON CHELICUTI, (Stanley.) *Rüpp. Zool. Atlas.* pl. 28, fig. b.
Alcedo Chelicuti, *Stanley. Salt's Trav. in Abyss. App.* p. 56, (1814.)
"Dacelo pygmaeus, Mus. Franc." *Rüpp. Zool. Atlas, Vög.* p. 42, pl. 28.
"Dacelo pygmaea, Cretzschm." *Bonap. Cons. Av.* p. 154.
Alcedo striolata, *Licht. Verz.* p. 12, (Sept. 1823.) ?
Alcedo variegata, *Vieill. Ency. Meth.* i. p. 397, (1823.) ?
1. Adult, Port Natal.
2. Adult female, Cape of Good Hope. Presented by Mr. J. P. Verreaux.
3, 4. Adults, Zanzibar, from the Rivoli collection.
5, 6. Adults, Africa, from the same.
7, 8, 9, 10. H. striolata, (*Licht.*), Western Africa, from Mr. Cassin's collection.

22. HALCYON RUFIVENTER, Swains. *B. of. W. Af.* ii. p. 101, pl. 12.
Alcedo semicaerulea, *Forskal. Forskal, Desc. Animal. Aves.* p. 2, (1775) ?
Alcedo cancrophaga, *Forster. Desc. Animal,* p. 4, (1844.) ?
Dacelo Acteon, *Lesson. Traité d' Orn.* i. p. 247 ?
Halcyon erythrorhynchus, *Gould. Proc. Zool. Soc. London,* 1837, p. 22 ?
Halcyon Swainsoni, *A. Smith. Quart. Jour. S. Africa,* 1836, p. 143 ?
"Alcedo erythrogaster, Temm." *Bon. Cons. Av.* p. 155.
1, 2, 3. Adults, Fazagloa, from the Rivoli collection.
4, 5. Younger, Fazagloa, from the same.
6. Young, Senegal, from the same.
7. Adult, Gambia, from Mr. Cassin's collection.
8. H. erythrorhynchus, ? Western Africa. Presented by A. A. Henderson, M. D., U. S. Navy.

23. HALCYON JAVANICA, (Shaw.) *Pl. Enl.* 757.
Alcedo javanica, *Shaw. Gen. Zool.* xiii. p. 100.
Alcedo leucocephala, *Gm. Syst. Nat.* i. p. 456?
1. Adult, Java.
2. Younger, from the Rivoli collection.

24. HALCYON GURIAL, Pearson. *Jour. As. Soc. Bengal,* 1841, p. 633.
Alcedo capensis, *Linn. Buff. Pl. Enl.* 590 ?

Halcyon brunniceps, *Jerdon*. *Madr. Jour. Lit. and Sci.*, 1844 p. 148.

1. Female, Sumatra.
2. Male ? India.
3. Adult, India. Presented by C. F. Huffnagle, M. D.
4, 5, 6. From the Rivoli collection.
7. Adult male, India, from Capt. Boys' collection.
8. Adult female, India, from the same.

25. HALCYON AMAUROPTERA, Pearson. *Jour. As. Soc. Bengal*, 1841, p. 635.

1. Adult, India. Presented by M. Burrough, M. D.
2. Adult, India, from the Rivoli collection.
3. Adult, India.

26. HALCYON MELANORHYNCHA, (Temm.) *Pl. col.* 391.
Alcedo melanorhyncha, *Temm.* *Pl. col.* iv. p. (liv. 66.)

1. Female, from the Rivoli collection.

2. Genus TODIRAMPHUS, Lesson.

1. TODIRAMPHUS CHLORIS, (Bodd.) *Buff. Pl. Enl.* 783, fig. 2. *Swains. Zool. Ill.* i. pl. 27.
Alcedo chloris, *Boddaert*. *Tab. dez Pl. Enl.* p. 49, (1783.)
Alcedo collaris, *Scopoli*. *Flor. et Faun. Insub.* pt. ii. p. 90, (1786.)
Alcedo chlorocephala, *Gm.* *Syst. Nat.* i. p. 454, (1788.)

1. Adult male, Java, from Mr. Gould's collection.
2, 3. Adult males, Java.
4. Adult female, Java.
5, 6, 7. Adults, from the Rivoli collection.
8, 9. Adults. Presented by Prof. Spencer F. Baird.
10. Female, Abyssinia ?
11. Nearly adult female ? Timor.
12. Younger, Timor.
13. Young, Java, from the Rivoli collection.

2. TODIRAMPHUS SACER, (Gm.) *Mem. Soc. Hist. Nat. Paris*, iii. pl. 11, (1827.)
Alcedo sacra et tuta, *Gmelin*. *Syst. Nat.* i. p. 453. *Lesson, ut sup.* and *Voy. Coquille, Zoologie*, i. p. 686.
"Alcedo collaris, Forster." *Licht. Desc. An.* p. 162.
Dacelo coronata, *Peale*. *Voy. Vincennes and Peacock, Birds*, p. 160.

1. Adult male ? Tahiti, from the Rivoli collection.
2, 3, 4. Young females, Borabora.
5, 6. Young, Borabora.

4. TODIRAMPHUS VAGANS, (Less.) *Voy. Erebus and Terror, Birds*, pl. 1.

Alcedo vagans, *Lesson*. *Voy. Coquille, Zoologie*, i. p. 694, (1826.)
“Alcedo cyanea, Forster.” *Lichtenstein, Desc. An.* p. 76, (1844.)

1. Nearly adult, Tahiti?
2. Younger, New Zealand? from the Rivoli collection.

5. TODIRAMPHUS AUSTRALASIÆ, (Vieill.) *Gould, B. of Aust.* ii. pl. 21.

Alcedo australasia, *Vieillot*. *Nouv. Dict.* xix. p. 419, (1818.)
Halcyon sanctus, *Vig. and Horsf. Trans. Linn. Soc. London*, xv. p. 206.

1, 2, 3, 4. Adult males, South Australia, from Mr. Gould's collection.
5. Male, Port Essington, from the same.
6. Adult female, Port Essington, from the same.
7, 8. Adult females, Western Australia, from the same.
9. Adult, Australia, from the same.
10. Adult, Australia. Presented by Prof. S. S. Haldeman.
11. Adult male, Australia? from the Rivoli collection.
12. Adult, Australia? from the same.
13. Young, Australia? from the same.
14. Adult, Sumatra? from the same.
15. Adult, from the same.
16, 17. Younger, Borneo?

6. TODIRAMPHUS RECURVIROSTRIS, Lafresnaye. *Rev. Zool.* 1842, p. 134, (*May*.)

Halcyon platyrostris, *Gould*. *Proc. Zool. Soc. London*, 1842, p. 72, (*June*.)
Dacelo minima, *Peale*. *Voy. Vincennes and Peacock, Birds*, p. 159.

1. Adult, Navigators' Island, from Mr. Gould's collection.

7. TODIRAMPHUS PYRRHOPYGIUS, (Gould.) *Gould, B. of Aust.* ii. pl. 22.

Halcyon pyrrhopygia, *Gould*. *Proc. Zool. Soc. London*, 1840, p. 113.

1, 2. Adults, Australia, from Mr. Gould's collection.
3. Younger, Australia, from the same.
4. Adult, Australia, from the Rivoli collection.

8. TODIRAMPHUS SAUROPHAGUS, (Gould.) *Voy. Sulphur, Birds*, pl. 19.

Halcyon saurophaga, *Gould*. *Proc. Zool. Soc. London*, 1843, p. 103.
“Alcedo cyanoleuca, Temm.” *Bonap. Consp. Av.* p. 157, (*not Vieill.*)

"Alcedo albicilla, Cuv." *Dumont, Dict. des Sci. Nat.* xxix. p. 273? (1823.)

1, 2. Adult males, New Guinea.

9. **TODIRAMPHUS SORDIDUS**, (Gould.) *Gould, B. of Aust.* ii. pl. 23.
Halcyon sordida, *Gould. Proc. Zool. Soc. London*, 1842, p. 72.

1, 2. Adults, North Australia, from Mr. Gould's collection.

10. **TODIRAMPHUS DIVINUS**, Lesson. *Voy. Coquille, Zoologie* i. p. 687, (1826.) *Mem. Soc. Hist. Nat. Paris* iii. p. 422, pl. 12, (1827.)
Dacelo nullitorquis, *Peale. Voy. Vincennes and Peacock, Birds*, p. 155.
"Alcedo tutu, Gm." *Gray, Cat. Fiss. Brit. Mus.* p. 58.
"Todiramphus sacer, Less." *Gray, ut sup.*
"Alcedo sacra et tuta, Gm." *Bonap. Consp. Av.* p. 156.

1. Male, Tahiti, from Dr. Townsend's collection.
2. Female, Tahiti, from the same.
3, 4, 5. Males, Tahiti, from the Rivoli collection.
6, 7. Females, from the same.

11. **TODIRAMPHUS CINNAMOMINUS**, (Swains.) *Zool. Ill.* ii. pl. 67.
Halcyon cinnamominus, *Swains. Zool. Ill.* ii. p.
"Dacelo ruficeps," *Cat. Rivoli collection*, p. 24.
"Alcedo ruficeps, Cuv." *Dumont, Dict. Sci. Nat.* xxix. p. 273, (1823.)?

1. Adult, Vanikoro.
2, 3, 4. Younger, Ladrones, ftom the Rivoli collection.

12. **TODIRAMPHUS CORONATUS**, (Müll.)
Halcyon coronata, *Müller. Verh. Nat. Gesch.* i. p. 175.

1, 2. Adults, Timor.

13. **TODIRAMPHUS TOROTORO**, (Less.) *Voy. Coquille*, pl. 31 bis. fig. 1.
Halcyon torotoro, *Lesson. Voy. Coquille*, i. p. 689.
Syma Lessonia, *Swains. Cab. Cy. Birds*, ii. p. 335.
Halcyon flavirostris, *Gould. Jard. Cont. Orn.* 1850, p. 105. *B. of Aust. Supp.* pl. ?

1. Adult, Havre de Dory, New Guinea.
2. H. flavirostris, male, Australia, from Mr. Gould's collection.
3. The same, female, Australia, from the same.

3. Genus ISPIDINA, Kaup.

1. **ISPIDINA PICTA**, (Bodd.) *Gray's Genera*, pl. 28.
Todus pictus, *Boddaert. Tab. Pl. Enl.* p. 49.
Todus cæruleus, *Gm. Syst. Nat.* i. p. 444. *Buff. Pl. Enl.* 783, fig. 1.

Alcedo ultramarina, *Daud. Ann. du Mus. Nat. Paris*, ii. p. 441.
Alcedo pusilla, *Shaw. Nat. Mis.* v. pl. 159.
Alcedo capistrata, *Shaw. Gen. Zool.* viii. p. 94.
" Alcedo todina, Merr." *Bonap. Consp. Av.* p. 159.
Halcyon cyanotis, *Swainson. B. of W. Africa*, ii. p. 103.
" Alcyone coronata, Smith." *Gray, Cat. Fiss. Brit. Mus.* p. 65.
Alcedo leucorhyncha, *Gm. Seba, Mus.* pl. 53, fig. 3 ?
Alcedo nitida, *Kaup. Die Fam. Alcedidæ*, p. 12 ?

1. Adult male, Port Natal.
2. Adult male, Cape of Good Hope.
3. Adult female, Senegal.
4. Younger, Fazagloa, from the Rivoli collection.
5, 6. Young, Senegal, from the same.
7. Young, Port Natal.

2. ISPIDINA MADAGASCARIENSIS, (Linn.) *Buff. Pl. Enl.* 778, fig. 1.
Alcedo madagascariensis, *Linn. Syst. Nat.* i. p. 179.
Dacelo ruffulus, *Lafresnaye. Rev. Zool.* 1838, p. 224.

1. Adult, Madagascar? from the Rivoli collection.

3. ISPIDINA LEUCOGASTRA, (Fraser.) *Zoologia Typica, Birds*, pl. 4.
Halcyon leucogaster, *Fraser. Proc. Zool. Soc. London*, 1843, p. 4.

1. Adult, Gaboon. Presented by Mr. Edward Verreaux.

4. Genus CEYX, Lacepede.

1. CEYX TRIDACTYLA, (Linn.) *Buff. Pl. Enl.* 778, fig. 2. *Jerdon, Ill. Ind. Orn.* pl. 25.
"Alcedo tridactyla, Linn. Mantiss. 1771, p. 524." *Gm. Syst. Nat.* i. p. 459.
Alcedo rubra, *Bodd. Tab. Pl. Enl.* p. 48.
Alcedo purpurea, *Gm. Syst. Nat.* i. p. 449.
Alcedo erithaca, *Linn. Syst. Nat.* i. p. 179. *Shaw, Nat. Misc.* ix. pl. 317 ?
Ceyx luzoniensis, *Stephens. Gen. Zool.* xiii. p. 106.
Ceyx microsoma, *Burton. Proc. Zool. Soc. London*, 1837, p. 89 ?

1. Adult, Malay archipelago. Presented by Mr. William S. Vaux.
2, 3. Adults, Singapore.

2. CEYX MELANURA, Kaup. *Die Fam. Alcedidæ*, p. 14.

1. Adult, Amboina.

3. CEYX RUFIDORSA, Strickland. *Ann. and Mag. Nat. Hist.* xix. p. 129. *Jard. and Selby Ill. Orn.* pl. 55, fig. 2.
" Alcedo tridactyla, Gm. Linn." *Jard. and Selby Ill. Orn.* i. p. (last page in vol.)

" Alcedo madagascariensis, Linn." *Jerdon, Ill. Ind. Orn.* p.

1, 2. Adults, Java.
3, 4. Younger, from the Rivoli collection.

4. **Ceyx lepida**, Temm. *Pl. col.* iv. p. (liv. 100) pl. 595, fig. 1.

1. Adult male, Amboina.
2. Adult, Ternate.
3. Young male, Amboina.

III. *Subfamily DACELININÆ.*

1. Genus DACELO, Leach.

1. **Dacelo gigas**, (Bodd.) *Gould, Birds of Aust.* ii. pl. 18.
Alcedo gigas, *Boddaert. Tab. Pl. Enl.* p. 40, (1783.)
Alcedo fusca, *Gm. Syst. Nat.* i. p. 454, (1788.)
Alcedo gigantea, *Lath. Ind. Orn.* i. p. 245 ?
Alcedo undulata, *Scop. Flor. et Faun. Insub.* p. 90 ? (1786.)
Choucalcyon australe, *Less. Traité*, i. p. 248.

1, 2. Adult males, Australia, from Mr. Gould's collection.
3. Adult female, New South Wales, from the same.
4. Young, New South Wales, from the same.
5. Adult male, Australia, from the Rivoli collection.
6. Young, Australia.

2. **Dacelo cervina**, *Gould. Birds of Aust.* ii. p. pl. 20, (1848.)
Dacelo Salussii, *Label on specimen from Paris. Voy. Ast. et Zelée*, pl. 23, fig. 1.

1. Adult male, Port Essington, from Mr. Gould's collection.
2. Adult female, Port Essington, from the same.
3. Adult male, Timor.

3. **Dacelo Leachii**, Horsf. and Vig. *Gould, B. of Aust.* ii. pl. 19.
"Dacelo Leachii, Lath. MSS." *Horsf. and Vig. Trans. Linn. Soc. London*, xv. p. 205.

1. Adult male, Cape York, from Mr. Gould's collection.
2. Adult female, Australia, from the same.
3, 4. Adults, Australia.

4. **Dacelo Gaudichaudii**, (Quoy and Gaim.) *Voy. de l'Uranie, Ois.* pl. 25.
Alcedo Gaudichaudii, *Quoy and Gaim. Voy. de l'Uranie, Zoologie*, p. 112.

1, 2. Adults, New Guinea, from the Rivoli collection.